The
OIL WEEKLY
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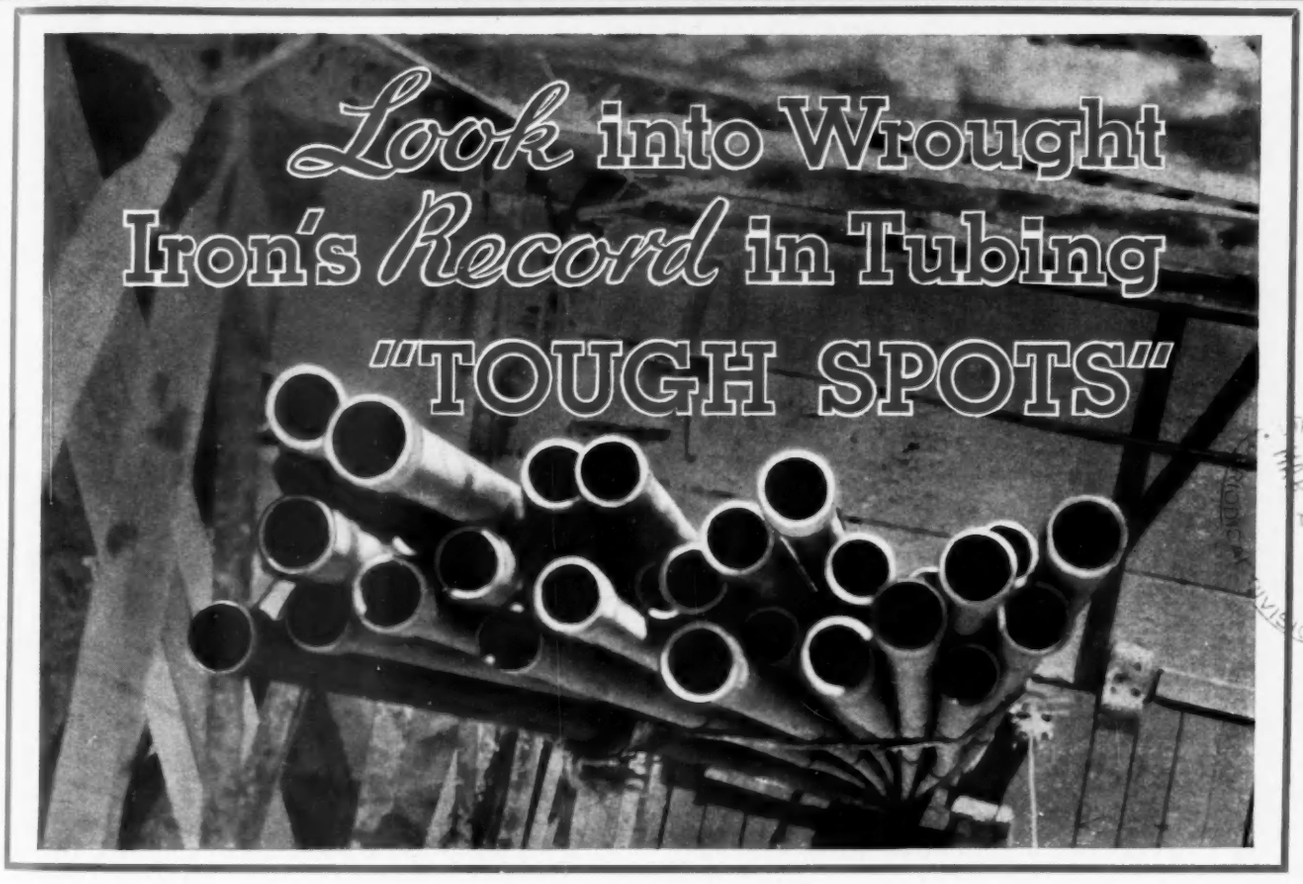
OIL and GAS ENGINEERING
FOR OIL AND GAS PRODUCTION AND PIPE LINE DIVISIONS
THE WEEK'S NEWS INTERPRETED



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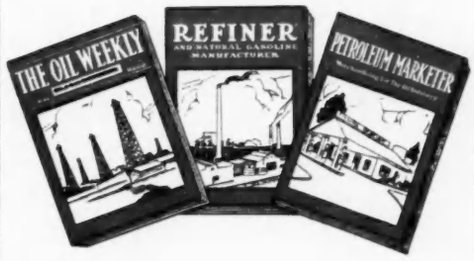

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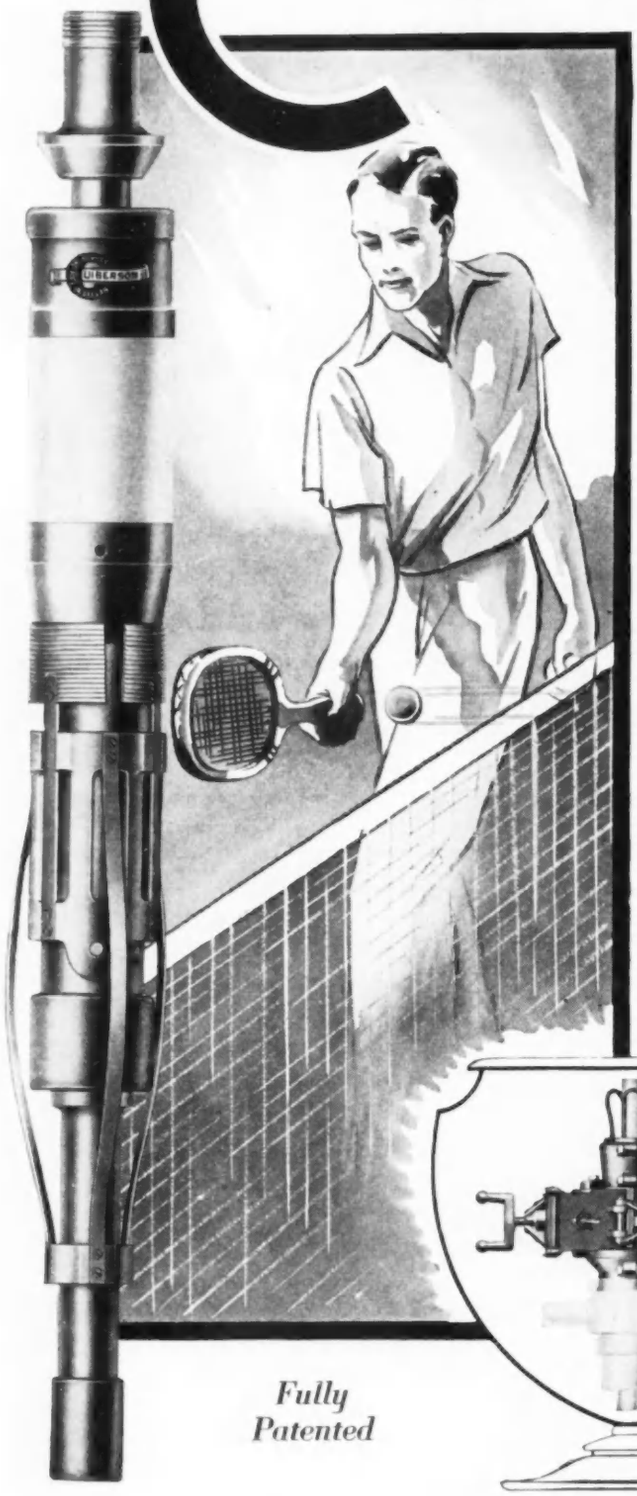

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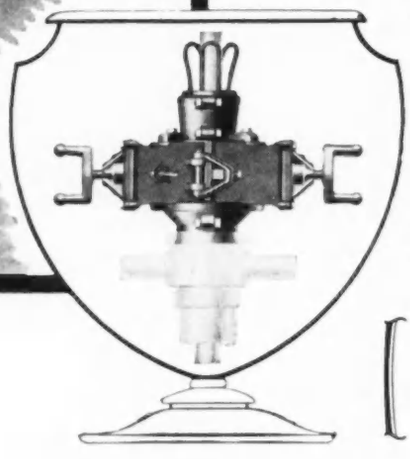

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THE OIL WEEKLY

FOR OIL AND GAS PRODUCTION AND
PIPE LINE DIVISIONS

ENGINEERING • NEWS • STATISTICS

The Changing Panorama

Reports to the A. P. I. from refining companies controlling 91.6 per cent of the 3,856,300-barrel estimated daily potential refining capacity of the United States, indicate that 2,045,000 barrels of crude oil daily were run to the stills operated by those companies, and that they had in storage at refineries at the end of the week, 37,996,000 barrels of gasoline and 125,816,000 barrels of gas and fuel oil. Gasoline at bulk terminals amounted to 11,397,000 barrels and 1,224,000 barrels were in water borne transit in or between districts. Cracked gasoline production by companies owning 95.4 per cent of the potential charging capacity of all cracking units, averaged 412,000 barrels daily during the week.

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The engineers scored a big victory over the front office that looked askance at the expense of determining bottom-hole pressures when that factor was injected into East Texas proration. In the meantime engineering departments have worked up a number of interesting appliances and methods of finding out conditions in the formations.

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East Texas Decision

Speculation on what a court decision will be is often futile—if there was a valid reason for knowing what the decision would be there would be no suit. But it is a privilege to guess, and already there are plenty of guesses on what will happen when the pending three-judge decision on East Texas is released, even to the date. Those in touch with the situation know that an adverse decision will throw the field into disorder, the prospect being that it will again close down. The commission is timing a hearing in the hope that it can issue another order in line with what the court may require quickly when it is released. Possibly it will be necessary to close down the field, or prices will drop to encourage those who are making trouble fall into line. Meantime all chance for a price increase is voided by continuation of sales of East Texas crude, regularly produced or otherwise, at much below the present low price level.

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The Oil Man's Calendar

FEBRUARY

23 *Texas Commission Hearing on East Texas, Austin, Texas.*

MARCH

23-25 *American Association of Petroleum Geologists, Rice Hotel, Houston, Texas. Concurrent meetings; Society of Petroleum Geophysicists and Society of Economic Paleontologists and Mineralogists, both at Rice Hotel, Houston.*

26 *American Chemical Society, Washington, D. C.*

APRIL

3-6 *Western Petroleum Refiners' Association, Arlington Hotel, Hot Springs, Arkansas.*

7-8 *Southwest District, A. P. I. Division of Production, Rice Hotel, Houston, Texas.*

13-15 *Petroleum Industry Electrical Association, Tulsa, Oklahoma.*

17-23 *Oil Equipment and Engineering Exposition, Texas State Fair Grounds, Dallas, Texas.*

20-21 *National Petroleum Association, Cleveland Hotel, Cleveland, Ohio.*

MAY

15-17 *Natural Gasoline Association of America, Tulsa, Oklahoma.*

17-19 *American Petroleum Institute Mid-Year Meeting, Mayo Hotel, Tulsa, Oklahoma.*

SEPTEMBER

20-22 *National Petroleum Association, Thirty-first Annual Meeting, Traymore Hotel, Atlantic City, New Jersey.*

OCTOBER

24-26 *American Petroleum Institute, Fourteenth Annual Meeting, Chicago.*

It's encouraging if not unusual to note in the statement of a big corporation's officials to its stockholders that the management is pleased to report, along with financial encouragement, that it has been able to keep up the number of names on its pay rolls and list of employe stockholders. It will be a big move toward stabilization of all industry when business concerns more generally place importance upon how many people they can keep profitably employed in making profits for capital; when those who have the responsibility of leadership will measure success as much by their responsibility to the general welfare as by financial rating.

Page 8.

Cool Engines

Internal combustion engines are familiar to everybody and all know that proper operation depends in great part upon dissipation of the too great heat of combustion, generally accomplished by circulating water over the engine cylinders. Knowing all that, however, a lot of people could learn much about efficiency of this cooling process and how the character of water used has a bearing on that efficiency. It will be news also to some that the cost of treating cooling water where required will be but a fraction of the expense occasioned by too much lube oil consumption when the engine runs too hot because the walls of the water jacket are covered with scale which retards dissipation of the heat; not to mention other heat annoyances from the same cause.

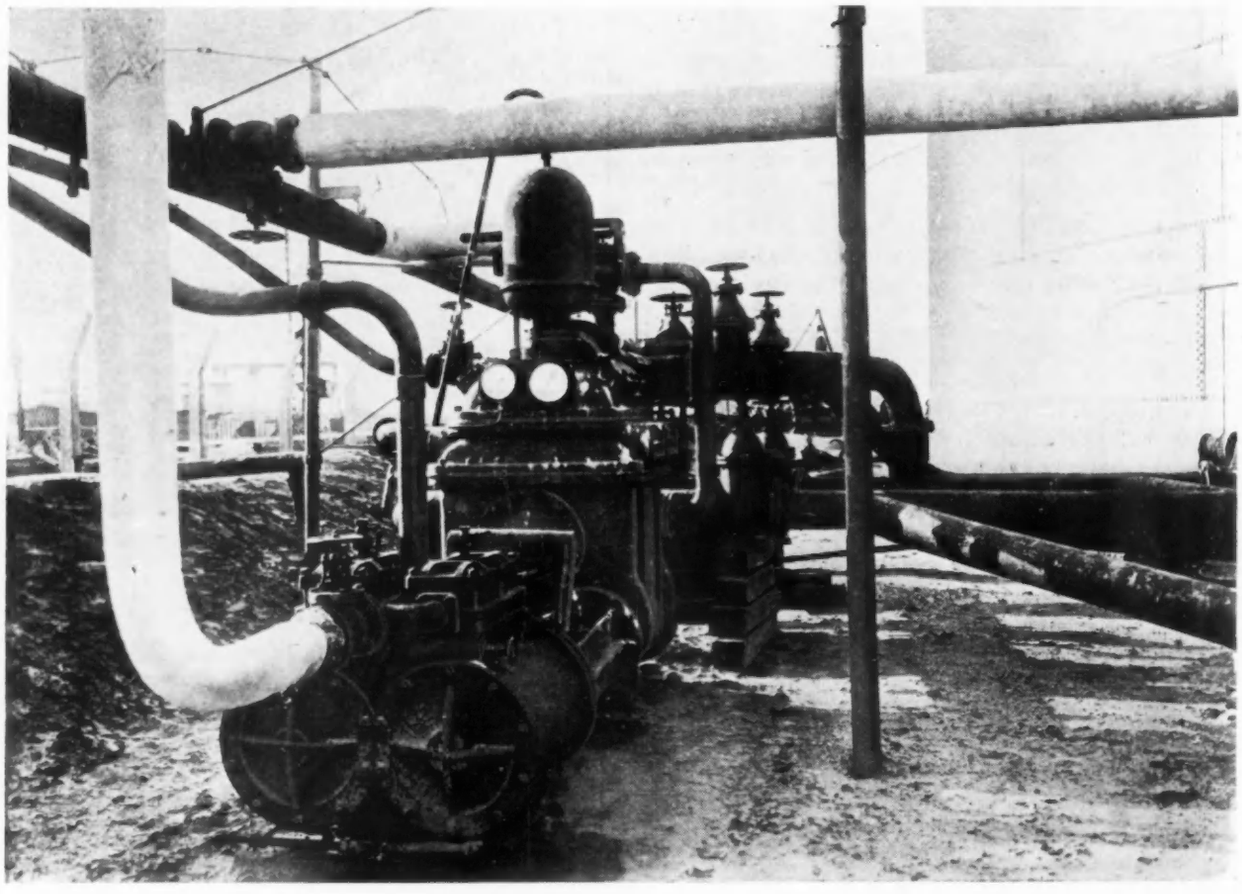
Page 13.

Overproduction and proration have not lessened interest in pumping efficiency—in fact these times more than ever require that pumping costs be made as low as engineering skill can make them. One phase of the subject that carries much importance is the size of the pump, proper selection of which becomes an individual problem under individual conditions.

Page 15.

Protection of a lake from pollution by a drilling well caused an Oklahoma operator to go to some unusual expense. It is assumed that if the wildcat should come in a "gusher" contamination of the drinking water would be only a small matter—or perhaps such rigging would protect it under all conditions.

Page 10.



One of the large pumps of the German-American Petroleum Company at Bremerhaven where ships of North-German Lloyd take fuel for their ocean voyages. This is the largest bunkering station, and fuel can be loaded in record time.

East Texas Nearing *Time for Action* After Federal Decision

Tyler, Texas.—A more drastic change in the method of prorating the East Texas oil field than previously experienced is generally expected to follow promptly after the three-judge federal court renders its decision on the legal status of the prevailing plan of determining allowables of leases and wells. The pending decision is expected within two weeks, and in addition to passing judgment on the Texas Railroad Commission's proration orders applying to the East Texas field it will possibly rule on the validity of the state's crude market demand law enacted by a special session of the legislature last November 12. An omnibus hearing involving fifty-odd plaintiffs, who raised various questions as to the legal powers of the commission, was held by the court at Houston late in January.

Expect Disapproval

In view of the evidence presented at the hearing against the commission's present method of allocating production in the East Texas field, with about 88½ per cent of the fixed daily allowable distributed on a per well basis, and the remaining 11½ per cent on a basis of bottom hole pressure, operators are almost unanimous in the belief that the court will declare the plan illegal. Those forecasting an unfavorable decision are of the opinion that the present method of allocating a production variation of from 28 to 31 barrels daily per well for flowing producers, and a marginal allowance of 40 barrels daily for pumpers, will not meet with the approval of the court. A similar court declared the per-well allowable illegal on October 24, 1932, and the above method of proration was later adopted by the commission in hopes of qualifying with an order that would be the most popular with the operators yet sidestep the voided per-well plan.

The adverse decision given the commission on October 24, 1932, indicated that the court deemed it necessary that several factors be included, such as structural position of leases and wells. The commission was yielding to pressure exerted by an influential group of operators when it adopted the per-well and bottom hole pressure plan effective January 10, as its first attempt to comply with the court's instructions effective December 10 distributing two-thirds of the field's allowable on a per-well basis, and the remainder on a combination acreage and bottom hole pressure basis.

Any consideration of acreage in apportioning production among leases has heretofore been successfully resisted by the majority of the operators—numbering more than 1000 separate companies, partnerships and individuals—by reason of the opponents to acreage having close spaced their wells because of the premium placed on excessive drilling by the per-well plan.

Since the acreage factor was injected into the omnibus case now pending by Rowan-Nichols Oil Company, a plaintiff seeking the consideration of acreage in part as a basis for fixing allowables, many operators are anticipating that the next order of the commission will incorporate same in spite of the opposition it will incur.

Limitation of production of the entire field to a fixed allowable of 290,000 barrels daily since the fore part of January is expected to be pronounced too low and unreasonable. In support of this contention an engineer for the commission testified at the January hearing that "I hardly see how the statute can be carried out under a restriction of less than 350,000 barrels daily for the East Texas field."

Average Basis

Close observers of the East Texas situation, and activities of the commission are firmly convinced that the recommendations set forth by the court in rendering its forthcoming decision will be religiously adhered to by the commission. Such a stand will be taken in the face of a storm of protest that is inevitable when the 800-odd operators (25 companies control about 71 percent of the productive acreage within the field) are confronted with a proration plan that gives less consideration to per-well allowable than heretofore. In the event the commission sees fit to abide by the court's instructions in its next order it is reasonable to expect that the federal court will support the commission in enforcing the order to the extent of awarding injunctions against proration violators that can not be curbed by the state courts.

Another complete shut down on oil production in the East Texas field by popular demand of oil land owners and operators favoring proration restrictions may be necessary before the commission can make the switch to a new plan of proration involving a drastic change in the method of apportioning allowable between leases and wells. Unless preventive measures are taken in the meantime there is danger of a major outbreak of over-production occuring with the release of the court's decision, and before a substitute method can be perfected and applied. The commission has made a preliminary move to shorten the interval by ordering a proration hearing to be held at Austin February 23, as there is some possibility of the proration case verdict being rendered about that date.

Operators are firmly convinced that ways and means must be furnished by the major purchasing companies serving the East Texas field to provide promptly a market for from 60,000 to 85,000 barrels additional to that now being produced legally in the field, also the commission will be burdened with a too great a handicap in winning the support of the rank and file of the small lease owners as well as many large tract owners to a revamped proration plan. Another concession from the large companies that is considered imperative is the boosting of the price posting from 50 cents to a more commensurate level reasonably soon after the possible major change in proration policy takes place. However, the price trend rests almost entirely in the hands of independent producers, who are supplying local and distant refineries with crude that now averages about 30 cents per barrel at the well, thus enabling the purchasers of the oil to flood the refined oil markets at prices that do not permit competing companies observing proration and abiding by the posted crude prices to realize sufficient profit from a barrel of crude to support a crude price advance.

Commission Order Planned To Check Rail Shipments

Austin, Texas.—Orders placing stringent regulations on the movement of oil from the East Texas field were issued Wednesday, February 15, by the Texas Railroad Commission. The purpose of the new order is to force closer compliance with proration allowables, through control of transportation.

The new regulations, alterations of the E-N tender form, will give the commission a more accurate check on producers and transporters of oil and was aimed primarily at reducing the production, sale and transportation of so-called "hot oil", which is oil produced in violation of the commission's proration orders.

Carriers of oil were prohibited from accepting oil for transport unless it is accompanied by a tender approved by the

commission. A copy of the tender must follow the shipment for the information of carriers who later handle the shipment.

Spotting of tank cars by railroads at oil loading racks, sidings, or other points where oil is being loaded, was prohibited unless a tender has been approved by the commission showing the source of the oil proposed for transportation.

A third form now required will call for a forecast of the oil to be run under tender, the forecast to be made to the pipe line company by the producers or purchasers, showing the amount of oil to be purchased or produced.

An affidavit must accompany the tender stating that the leases from which the oil is being produced are not producing excessively. Affidavits were demanded from pipe line companies that they were not running oil in excess of the allowable.

Nye Resolution *Would End* "Teapot Dome Oil Scandal"

Washington, D. C.—Final closing of the Teapot Dome scandal by the acceptance by the government of an offer of approximately $5,000,000 for settlement of the case against Pan American Petroleum Company, now pending before the Department of Justice, would be authorized by Congress under the terms of a resolution introduced February 13 by Senator Nye of North Dakota.

A judgment for $9,277,666.17 was entered in the Los Angeles district court January 14 against Pan American Petroleum Company. The resolution would authorize the Department of Justice to release from claim or lien under that judgment such part of the property and assets of the Pan American Petroleum Company and Richfield Oil Company of California as shall "seem to him proper and advisable, in consideration of payments to the United States to apply upon said judgment of not less than the sum of approximately $5,000,000, and in connection therewith to release any claim of the United States against purchasers of oil and petroleum products from the leases commonly known at 'E', 'I' and 'G' leases, or also known as Visalia 010042, 010043 and 010097 leases in Naval Petroleum Reserve No. 1, Kern County, California, and to consent, in the premises, to the assignment of other oil and gas leases in said Naval Petroleum Reserve No. 1, now part of the unmortgaged assets of Pan American Petroleum Company, with the concurrence of the Secretary of the Navy, and to the assignment of other oil and gas leases, also part of the unmortgaged assets of Pan American Petroleum Company, of the United States, outside the said Naval Petroleum Reserve No. 1."

Conroe Wells Still Open *While Supreme Court* Reconsiders Case

Austin, Texas, Feb. 17.—The Supreme Court this afternoon overruled Attorney General Allred's motion for temporary injunction against Alpha Petroleum Corporation, restraining it from violation of proration orders at Conroe until the court has passed on motion for rehearing filed by the latter.

The court said there is no necessity for this relief, after noting that the order restraining Allred from instituting suit in Travis County District Court had been dissolved last Monday.

Late Friday the state secured an injunction in district court.

The fact that Alpha Petroleum Corporation has right to file a motion for rehearing in this case does not effect to keep alive temporary restraining orders heretofore issued which the court has since annulled and vacated, the court said, and pointed out its ruling on this motion is not intended to intimate it would grant relief prayed for by Allred if the necessity arose.

The motion set out that Alpha Petroleum Company has consistently violated the proration orders on its wells, particularly No. 3 and No. 4, which, from the date of their completion have produced in the neighborhood of 3500 barrels per day apiece.

This supplemental motion pointed out that the action for temporary injunction was filed by the railroad commission against Alpha Petroleum Company in the supreme court in January, which first motion was made necessary by virtue of the fact that the supreme court had restrained the commission from suing Alpha Petroleum Company for violation of its proration orders until the supreme court had disposed of the pending litigation; that since the opinion of the supreme court was handed down on February 13, holding that the company had instituted its attack on the proration orders in a court which had no jurisdiction of same, the company has continued to violate proration orders and is still doing so.

Austin, Texas.—In a special session on Monday, February 13, the Supreme Court of Texas in a decision on the Alpha Petroleum Company suit, upheld the provision of the new conservation law that restraining orders against proration orders by the Texas Railroad Commission cannot issue without notice and hearing, and that the jurisdiction is clearly within Travis County, at Austin, on all such orders valid on their face, and requiring testimony to prove their invalidity.

The opinion, written by Judge Critz, of the Commission of Appeals, is a sizeable victory for the railroad commission, except that it may encourage contestants to file their suits in the federal courts when applying for injunctions against the commission's proration orders.

The opinion was rendered in upholding the Beaumont Court of Civil Appeals in its dissolution of an order issued by the district court of Montgomery County in favor of Alpha Petroleum Company, which the two higher courts construed as temporary injunctions against the commission's proration orders.

Humble Re-Elects Directors: EarnsDividendRequirement

Houston. — An optimistic note was sounded here February 13 in the statement made to stockholders of Humble Oil & Refining Company regarding the company's operations and financial position.

In the absence of W. S. Farish, president, the statement to the stockholders in their annual meeting was made by R. L. Blaffer, vice president and treasurer.

At the meeting the 10 directors of the company were re-elected for the coming year. They are as follows: W. S. Farish, R. L. Blaffer, W. W. Fondren, H. C. Wiess, F. P. Sterling, E. E. Townes, James Anderson, J. S. Bonner, W. E. Pratt and John R. Suman.

Following is the statement by Mr. Blaffer:

"The earnings of the company during the past year have not been definitely determined up to this time, due to the fact that our books have not been finally closed. But we can say that the earnings will be in excess of our dividend requirements.

"The company is in a sound cash position.

"In July this year our 5½ per cent bond issue matured and was retired without any refinancing — payment being made out of cash on hand which

we have been accumulating for the past several years for this purpose.

"It is going to be the policy of the management to continue to conserve its cash so far as consistent with the natural expansion of the business.

"During the past year we have made very large investments in various oil properties, the principal ones being in the Rabbs Ridge and Conroe fields, and these in time should add materially to the future earnings of the company.

"Our daily average net production for 1932 was 70,415 barrels, coming from 1756 whole-interest producing oil wells and 928 part-interest producing wells. In addition, the company purchased from outsiders 133,000 barrels per day, or nearly two barrels for each barrel of oil produced by our own company. During the year we have drilled approximately 600 wells, of which only 18 were dry holes.

"The showing that the company has made during its year's operation is due to the wholehearted efforts and cooperation of all connected with the company, and to the working out of various economies in operation in all departments. Further efforts in this direction are receiving the consideration of the management.

"In spite of general depressed conditions we have, through the inauguration of the five-day week and other similar plans, taken care of our employes. In fact, we close 1932 with a few more employes on the roll than we had on December 31, 1931.

"It is very gratifying to note that we have lost very few employe stockholders during the year. At the end of 1931 there were 2427 employe stockholders; at the end of 1932 there were 2245 employe stockholders; and, when the 1930 Employes Stock Purchase Plan was closed on December 31, 1932, an additional 1800 employes became new stockholders in the company, making a total of 4045 employe stockholders on the last day of the year. Under prevailing conditions this is a good record."

Dallas, Texas.—A flood of inquiries as to prices and possible delivery dates on large steel tanks have been reaching tank manufacturing and erection companies as result of some East Texas producing units having become disturbed over the frequent outbreaks against proration restrictions. Representatives of tank companies estimate that "feelers" have been sent out since first of year for an aggregate of more than 10,000,000 barrels of steel storage. However, no sales involving any appreciable number of tanks have been consummated, owing to the rapid changes from day to day on the proration outlook.

Commission Insists *Texas Hearing Be Open;* More Hearsay Than Facts

Austin, Texas.—Most of the time that the House Committee on Oil, Gas and Mining investigating the Texas Railroad Commission has been in session the past week, has been occupied with arguments concerning the methods of procedure employed.

Charges and counter-charges were flung about by members of the committee, but most of the argument involved Representative O. F. Chastain of Eastland, and Representative Bob Long of Wichita Falls, the latter chairman of the committee and chief inquisitor.

The question arose over the type of evidence which Long and two other members of the committee, Sidney Latham of Longview and C. M. Turlington of Tatum, were attempting to elicit from witnesses. After obtaining from the witness all evidence of which he had personal knowledge, these investigators then inquired concerning "what the witness had heard" concerning this or that condition in the field; they wanted to know "what the talk was" on such questions as whether or not commission employes were taking bribes, and asked the witness to give "his opinion" as to whether or not conditions in the field were improving or becoming worse.

Through this line of questioning, these three members of the committee created such dangerous inuendoes that several attorneys present, personal friends of some of the representatives of the press, warned them against quoting either questions or answers, pointing out that there was much danger of their publications being sued for libel if these statements found their way into the papers.

"It seems to me," said Chastain to Long, "that you are merely seeking to cast aspersions on the railroad commission, rather than attempting to develop any evidence concerning the commission's work with the proration laws."

Following this statement, Chastain requested that the committee confine its evidence to the rules of the district court, or else go into executive session, from which the press would be excluded.

Jno. Boyles, attorney for the commission, rose at once and demanded that the hearing remain open to the public.

"The commission has nothing to hide," he said, "and we are willing and anxious for the people of Texas to know just what has been done and why. We think that the investigation is for the benefit of the people, and that it is their right to know whether or not there is anything wrong with the administration of the oil industry by the commission."

Attorney General Allred, who has been present throughout most of the hearings, told the committee that the publicity derived from hearsay testimony which had been adduced during the investigation was detrimental to the interests of the state as a whole, and particularly harmful to the oil business.

"You are hurting the very people you want to help," he said, "and all these insinuations of overproduction and law violations in the East Texas oil field do no good to anyone. Of course, if the witness knew of such violations, that would be a different matter."

Allred warned the committee that they might expect further crude price reductions if they succeeded in convincing purchasers, through their insinuations, that the conditions in the field were beyond the control of the commission, and that graft was taking place.

"If you have a witness that knows of anything of this sort," the attorney general continued, "I urge you to place him on the stand and prove it. Most of the evidence that you are getting here is not evidence, but gossip, hearsay and rumor."

Allred has observed the hearings of the committee closely, as Long insinuated early in the investigation that some of the blame for failure of enforcement was due to lack of diligence on the part of the attorney general and his aides.

The quarrel began while J. D. Copeland, Jr., who checks tenders for the commission in East Texas, was on the stand. Copeland had testified that he obtained a week's vacation last summer shortly before the elections, and that he came to his home in Austin and campaigned for Terrell and Thompson, among other candidates.

Chastain objected to this line of questioning, saying that this had nothing to do with proration enforcement, and that he would not tolerate an employe who would not support his employers.

(*Continued on page 33*)

Looking westward from the lake side.

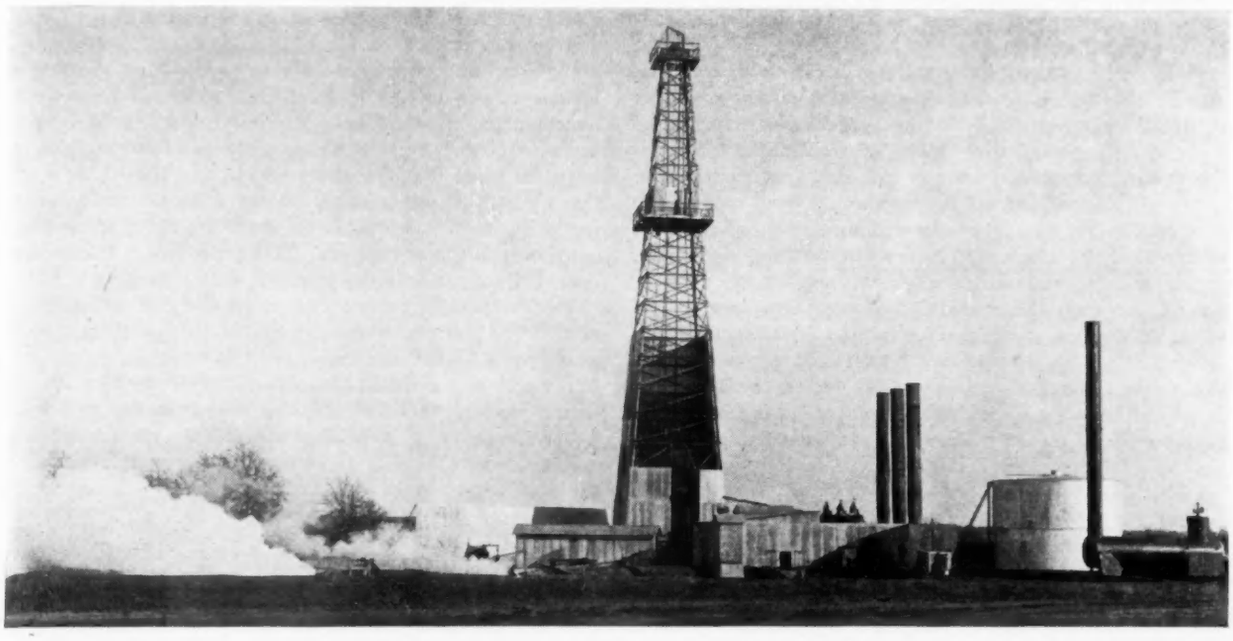
Casing Off City Water

Gives This Oklahoma Test

An Expensive Start

IN addition to the complex subsurface problems of modern rotary drilling, exploration departments have been called upon to solve many problems in connection with the location of surface equipment. Chief among the factors which have brought on these surface problems are townlot drilling areas, where limited space is available, and areas of sharp relief, where any number of topographic irregularities must be overcome. These surface handicaps have been encountered in so many areas that their solution now is seldom of special interest. However, that there are always new problems to be solved by the oil industry, is evidenced by Amerada Petroleum Corporation and Stanolind Oil & Gas Company's Gorby 1, NEc SW Section 28-18n-4e, Payne County, Oklahoma, which is thought to be one of the most unusual tests in the history of Mid-Continent development.

The test, which is now nearing completion, is located approximately 680 feet from the high water mark of the lake from which Cushing, Oklahoma, secures its domestic water supply. From a geological viewpoint it was necessary that the location be made directly upon the water shed and it, therefore,



Looking toward the lake. Note construction of boiler house. Also that all steam is exhausted into the reserve pit which is farthest away from the lake.

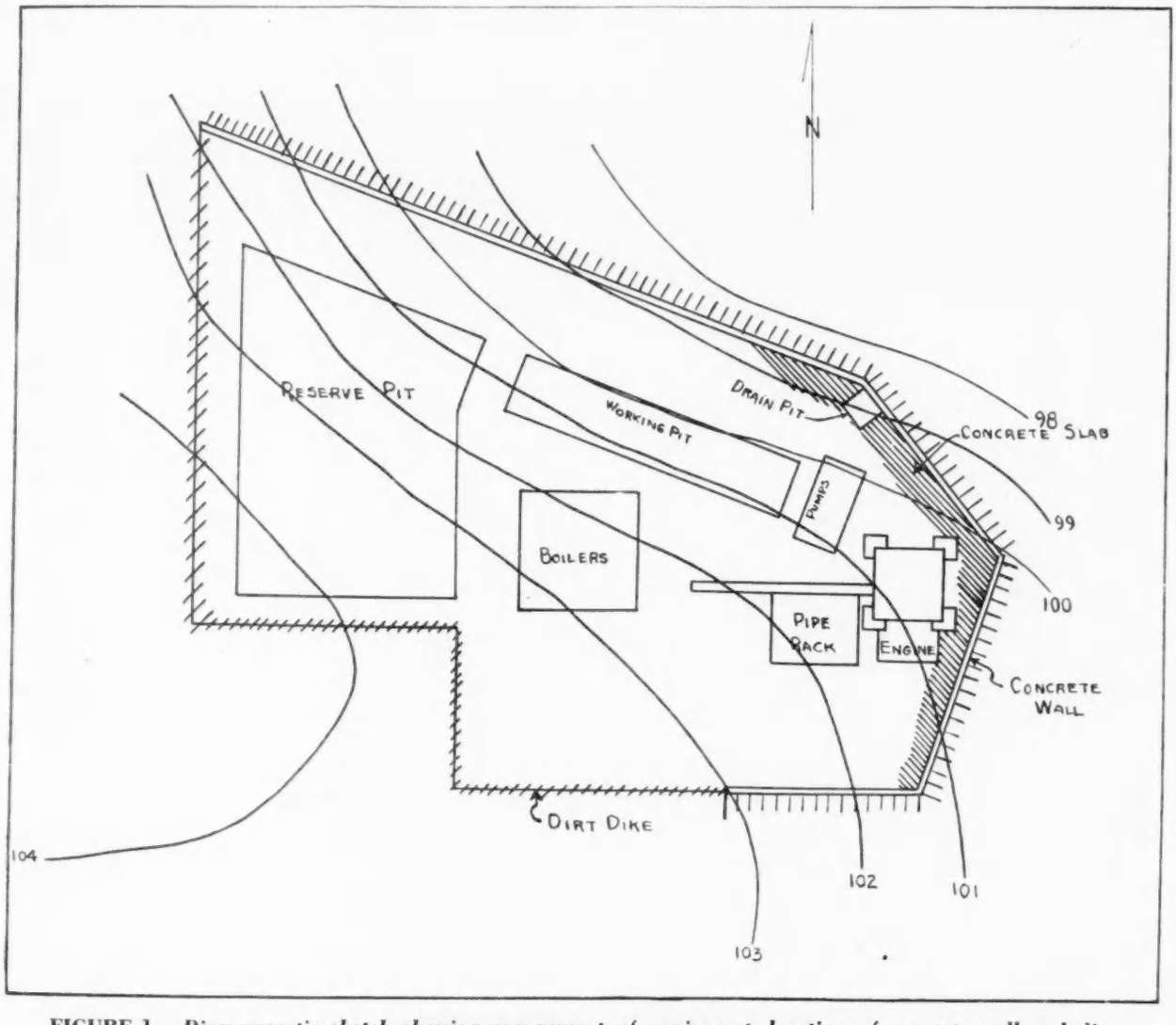


FIGURE 1— *Diagrammatic sketch showing arangement of equipment, location of concrete wall and dirt dikes, and contour of surface.*

became necessary that extreme care be taken to prevent pollution of the water supply. How operators solved this problem makes a rather interesting story aside from the fact that the test has an excellent opportunity of locating a new pool.

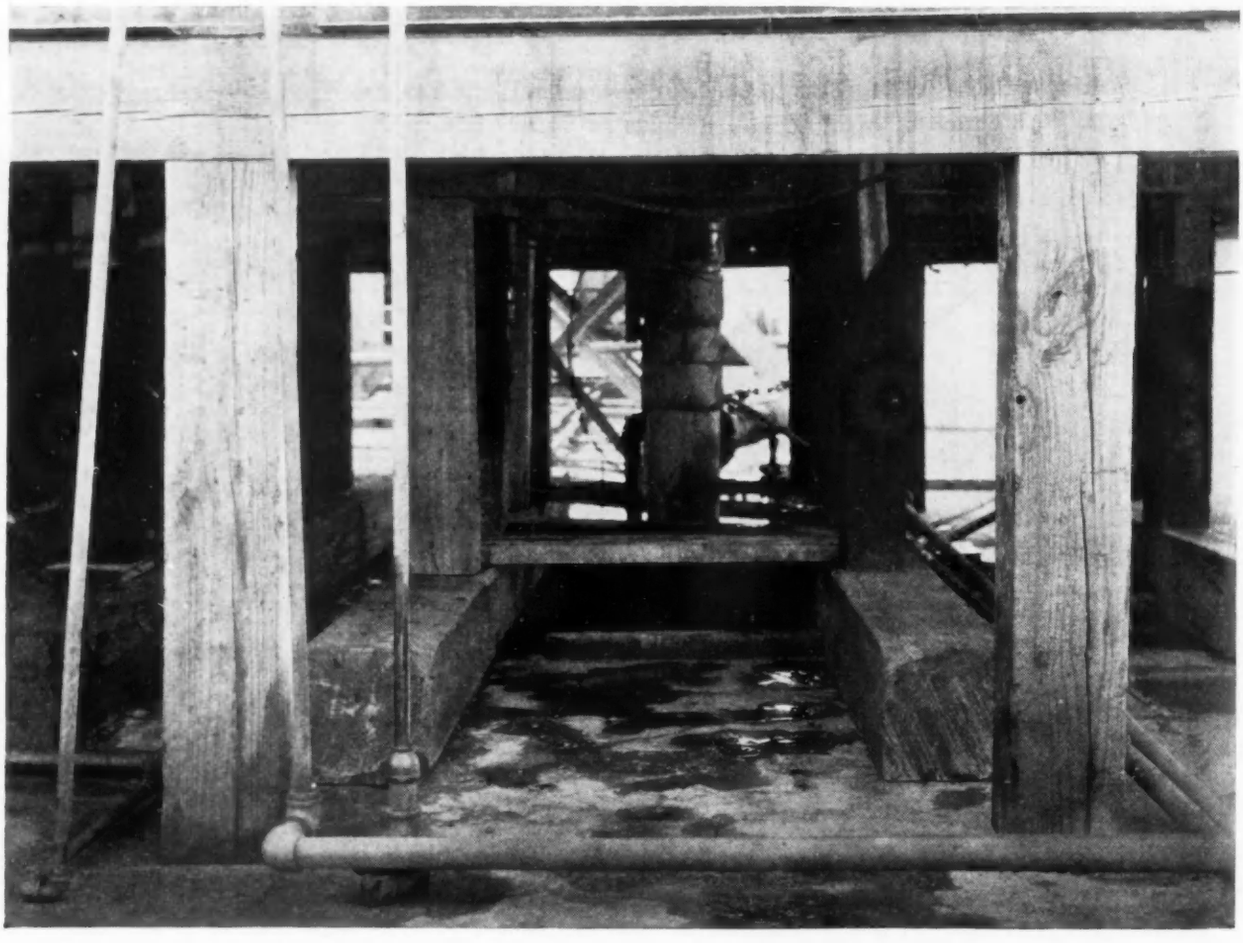
After making a study of the topography, company engineers decided that a concrete wall, having a minimum thickness of eight inches and a maximum thickness of 24 inches, depending upon soil conditions, should surround the location on three sides. Principal duty of the well would be to confine any water which might pass over the drilling site from rains on the water shed, vapors escaping from the drilling equipment, or rotary drilling mud, which might be lost in any manner. This made necessary the erection of a corrugated iron wall to a height of 12 feet above the top of the concrete wall and the closing in of the derrick to a height of approximately 56 feet above the ground on the three sides nearest the lake. The concrete wall has an approximate length of 462 feet, all of which is supported by a dirt dike rising to within a few inches of the top of the concrete. Higher sides of the location are enclosed by a dirt dike 390 feet long.

In order that the cost of the retaining wall be held to a figure within reason it was necessary that all equipment and pits be carefully located. Figure 1 is a diagrammatic sketch showing the arrangement which was accomplished without the handicap of insufficient working space. A concrete mat or slab 10 feet wide and four inches thick was laid on the lower sides within the wall and a sump hole dug at its lowest point. The concrete mat under the derrick floor is four inches thick and extends to the outside corners of the rig. A concrete rim four inches high encircles this mat. Drainage from the pump house and from three sides of the rig is conducted over concrete to the sump hole.

Duties of the crews, in addition to the usual drilling tasks, include raking up the location, picking up all cigarette butts, matches, or other refuse, washing under the derrick floor and on the concrete mats with a high pressure hose, and covering with loose dirt any spots which may have been made by the spilling of oil or mud. After concrete mats have been washed a slush pump picks up water from the sump hole and delivers it to the reserve pit. This procedure is followed every tour, and as a result the location is as neat as any well kept city park. Before commencement of the test an analysis was made of the normal lake water and additional checks are being made as drilling progresses.

The test was spudded December 27, 1932. In 28 drilling days it had reached 4000 feet and was setting casing on top of the Viola limestone, a somewhat remarkable record for wildcat drilling under the precautions which had to be taken. Although the acid bottles were not clearly etched, a possible maximum deviation of one degree was reported with an average of less than a half-degree.

A. G. Wolfe, secretary-treasurer of Creekmore Drilling Company which has the contract, says that total depth was reached without washing boilers and that they were able to get the casing to within four feet of bottom. Although the corrugated iron wall had been constructed to catch any spray of mud and water during drilling operations, total depth was reached without a spot of mud or water hitting the wall.



Showing concrete mat under derrick and ample working room. Ordinarily the mat is perfectly dry but the crew had "washed down" just before this picture.

Economies *Effected by Chemically Treating Cooling Waters for* Pumping Engines

H. M. McCLAIN

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THIS paper presents results of observations made and data taken by the author while engaged in the work of determining the effect that hard water scale has upon the operating efficiency and repair cost of internal combustion engines.

The general problems encountered in the operation of a pumping engine, while using a hard untreated cooling water, are:

1. **Replacement of cylinder heads, cylinders, pistons and piston rings.**
2. **High oil consumption.**
3. **Low operating efficiency of engine.**

It is believed that the scale accumulated in the water jackets of pumping engines creates a high operating cost, and the importance of removing the scale from the water jackets and treating the water to prevent the depositing of the scale has not received sufficient consideration by the operators of pumping engines in the oil fields.

In every case, where the engines have been cleaned of scale, and the water treated, the results obtained in the way of reducing general repair, oil consumption, and increasing the operating efficiency of the engines have been remarkable. This being the case the problem remained to find the most practical and economical method for cleaning the water jackets and treating the cooling water.

This paper was read before the Mid-Continent District A. P. I. Division of Production, at Wichita, Kansas, February 17-18, 1933.

IT is obvious that the cooling of an engine depends upon the transfer of the heat developed within the combustion chamber to the water in the water jacket.

The retention of heat within an engine, when sufficient cooling water is available, is caused by an accumulation of a foreign substance, as a scale, in the water jackets, and depends upon the quantity and the insulating property of the chemical ingredients collected as the scale.

The quantity of heat developed within an engine is governed by:

1. Fuel used for operating.
2. The speed of operation.
3. Lubrication.
4. The load carried by the engine.

Table No. 1 gives the comparison of the amounts of heat absorbed per rated horsepower per hour by the water circulating through both the clean and scaled cylinder water jackets and the per cent increase in heat absorbed by the water after removing the scale.

TABLE NO. 1

Heat (Btu) Absorbed Per Rated Horsepower by Cooling Water

Cylinder No.	Size of Cylinder	Before removing scale	After removing scale	Per Cent Increase
1	45	1570	2500	59
2	45	1990	2900	46
3	45	830	2070	150
4	50	1040	2090	101
5	50	1100	2020	83
6	50	1530	2490	63
7	50	1530	2300	50
8	40	1100	1860	69
9	40	950	1750	84
10	40	1040	1875	80

Lubricating Oil Effect Upon Heat Absorbed by Cooling Water

The quantity of oil necessary for proper lubrication of an engine, while operating under ideal conditions, depends upon the size, the operating speed and the load being carried by the engine.

In the field, where scale has accumulated in the water jackets, it is general practice to increase this quantity of oil for lubrication, to offset an increase in the operating temperature of an engine.

This practice often results in the using of more oil than is required for proper lubrication.

The excess oil, when burned with insufficient oxygen under high pressure and temperatures, as in an engine cylinder, always deposits a carbon residue upon the piston and piston rings with the liberation of large quantities of heat.

Graph No. 1 compares the data of the test on three engines, which determined the effect different quantities of scale in a water jacket, and different quantities of oil used for cylinder lubrication, have upon the quantity of heat absorbed by the cooling water. The three engines used for the test were operating under identical conditions; however, the water jacket on Engine No. 1 was clean, while the jacket on Engine No. 2 contained a thin coating of scale; and the jacket on Engine No. 3 contained approximately one fouth-inch of scale.

The treated water circulating through the clean water jacket on Engine No. 1 absorbed more heat than did either of the waters circulating through the water jacket on Engine No. 2, which contained a small coating of scale; and Engine No. 3, which contained approximately one fourth-inch of scale. As the oil for lubricating the cylinder was increased, the water circulating through the clean water jacket on Engine No. 1 absorbed larger quantities of heat than did either of the waters circulating through Engines Nos. 2 and 3. Likewise, the water in Engine No. 2 absorbed more heat than the water circulating through the water jacket on Engine No. 3.

After completing the test, the scale was removed from

TABLE NO. 2
Oil Consumption Comparison for a One-Year Period

Cylinder No.	Size of Cylinder	[1]Gals. oil used before removing Scale	[2]Gals. Oil used after removing Scale	Gals. of Oil Saved per Year	Per Cent Saving in Lubricating Oil
1	45	372	240	132	35
2	45	372	240	132	35
3	80	372	201	171	46
4	80	372	201	171	46
5	45	372	222	150	40
6	45	372	222	150	40
7	50	408	215	190	46
8	50	408	215	190	46
9	50	408	215	190	46
10	45	372	181	191	51

[1]Quantity of oil shown was used over a one-year period between July 1, 1931, and July, 1, 1932.
[2]Quantity of oil shown was calculated for a one-year period using for a basis the quantity of oil used over a six-month period after treating the water.

Engines Nos. 2 and 3, and upon re-running the test it was observed that the waters absorbed approximately the same quantity of heat as the water circulating through Engine No. 1. Therefore, the results of tests as shown in the No. 1 Table and Graph, indicate that the scale accumulated in water jackets of pumping engines does affect the transfer of heat from the engine to the cooling water.

Economies in Engine Operating Expense

By comparing the operating conditions before removing the scale with those existing after, the relation of the heat retained within an engine to the operating repair cost, can be determined.

Table No. 2 compares the quantities of oil required for lubricating the engine cylinders for a one-year period while operating before and after the scale was removed from the water jackets. It also indicates the savings in lubricating oil per year per engine cylinder.

TABLE NO. 3
Engine Repair for a One-Year Period

Engine No.	Cylinder Head	Cylinders	Sets Piston Pistons	Rings	Days Labor[1]
1	1	1	1	4	10½
2	1	1	1	4	10½
3	1	.	.	.	1
4	1	1	1	1	2
5	.	.	.	2	4
6	.	1	1	3	10
7	.	.	.	1	10
8	.	1	1	4	

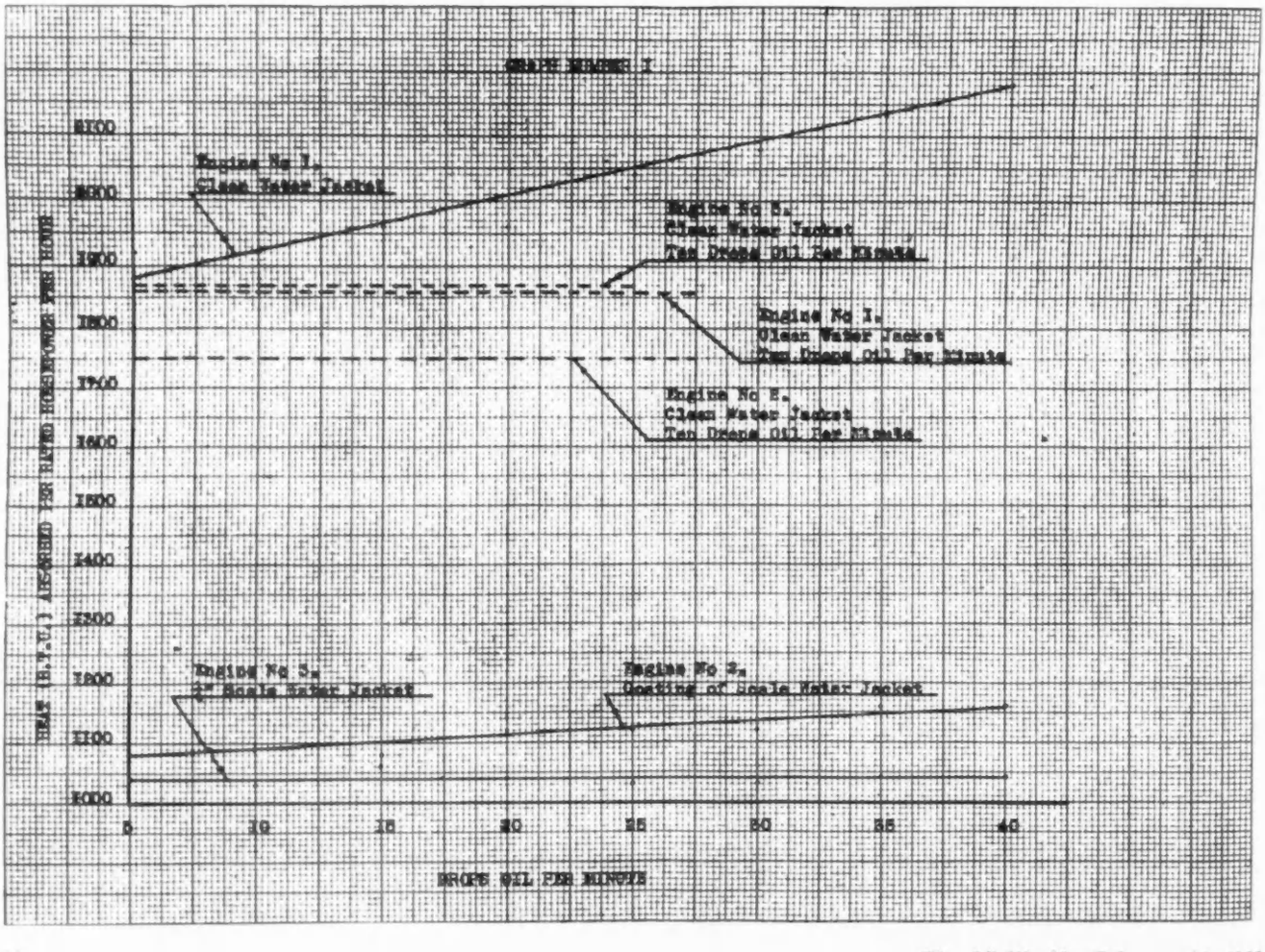
[1]A part of the labor shown was for removing, by mechanical method several accumulations of scale from the water jackets.

The repair cost of some of the engines included in this paper has been excessively high. This engine expanse has been partly due to the fact that the engines are operating at a high rate of speed and carrying a capacity load which creates a natural depreciation; however, the repair costs of these engines are apparently in proportion to the quantity of scale accumulated in the water jackets.

Table No. 3 compares the engine repair costs for a one-year period for several engines included in this paper. These repairs were considered as an average for those engines for every like period of time while using the same supply of water.

As yet the comparative cost data for those engines included in Table No. 3, while operating with a treated cool-

(*Continued on page 26*)



The Proper Diameter Pump *for the* Oil Well

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Phillips Petroleum Company.
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This paper, prepared for presentation before the meeting of the Mid-Continent District, A. P. I. Division of Production at Wichita, Kansas, February 17-18, 1933, has been described by the author as an "attempt to show the reasons for installing a pump of the proper effective diameter, and a rough method by which this diameter can be determined."

OIL wells that are produced by pumping may be roughly classified into two divisions. The first division includes those that must periodically take a potential and produce interim at a prescribed rate, as ordered by the proration authorities. These wells must be equipped so as to produce a maximum amount of oil during the potential period at a reasonable expense, and the allowed oil at a minimum expense. In some fields proration regulations specify the maximum size of some of the equipment to be used, as tubing size, length stroke, and the operators are necessarily limited accordingly in their choice of machinery, but as the potential of fields such as these decrease there will come a time when these maximum limitations are no longer applicable and it will become necessary to use the same logic in installing pumping equipment that is used in fields not so regulated. It will be necessary to choose a pump of an effective diameter large enough to produce the fluid but not so large that it will cause an excessive number of sucker rod fractures. It will be necessary to choose a pumping stroke of sufficient length to minimize the amount of lost pump plunger travel over a unit of time, and for a reasonable sucker rod load. In other words, prorated wells must be equipped to satisfy the requirements of proration, and the demands of good operating and engineering practice.

The second division includes those wells that produce the marginal allowable or less, "strippers", wells that must be equipped to produce at the point of greatest net return.

During the last few years the margin of profit between lease revenue and lease operating expense, on the so-called "stripper" leases has constantly been reduced until now it is very slight, if not a loss. The prime cause of this reduction is, of course, the reduced price of oil. The secondary cause is the reduced quantities of oil that can be produced from the properties because of their increased age. The ability of the operator to either improve the general production status of the lease, or to reduce its operating cost is his only method of retaliating.

One of the more important constituents of operating cost is the actual cost of pumping the well. The cost of keeping the pump in service, the cost of keeping the sucker rods, rig front, belts, counter shaft, clutch and engine running. In the past because of the higher price obtained for the oil produced there has been a strong tendency to overlook this cost, probably rightfully, considering instead only the value of the oil lost during down time. But now it has become necessary to give due consideration to the cost of the material and labor used.

Unfortunately, the saying that a chain is as strong as its weakest link still holds true in a pumping well, and usually in the average heavy well the weakest link turns out to be the sucker rods. The manufacturers of sucker rods assure us that with the present knowledge of metallurgy, with the present methods of manufacturing, and at a reasonable cost it is impossible at the present time to supply us with a sucker rod capable of withstanding the type loads and conditions to which a rod sometimes is subjected. Consequently, the cost of keeping sucker rods in operation is a considerable item in these wells, and we must in some manner reduce the loads on these rods in order to receive satisfactory service from them.

Given the same surface equipment with reasonable flexibility as to the length pumping stroke, and the number of strokes per minute at which the well can be pumped, there are several ways of reducing this sucker rod breakage. Either by slowing down the well and increasing the volumetric efficiency of the pump by keeping the pump in a better state of repair which usually requires more well serviceing. By increasing the length of stroke and reducing the number of strokes per minute which practically always causes more surface rig trouble, and usually requires smaller pulley sizes and more surface counter balance and heavy equipment throughout. Or to reduce the effective diameter of the pump and use a slightly longer stroke, if necessary.

By using a pump of smaller effective diameter the upstroke load is reduced, while the down stroke load remains approximately the same, thus materially reducing the amount of counter balance required, and enabling the prevailing type counter balance, that is dead load and crank, to more closely balance the well, allowing a more uniform flow of power through the surface transmission equipment.

The following table gives several wells in which it was not necessary to materially increase the length stroke or number of strokes per minute to obtain the same fluid from the well as was previously produced with the larger effective diameter pump.

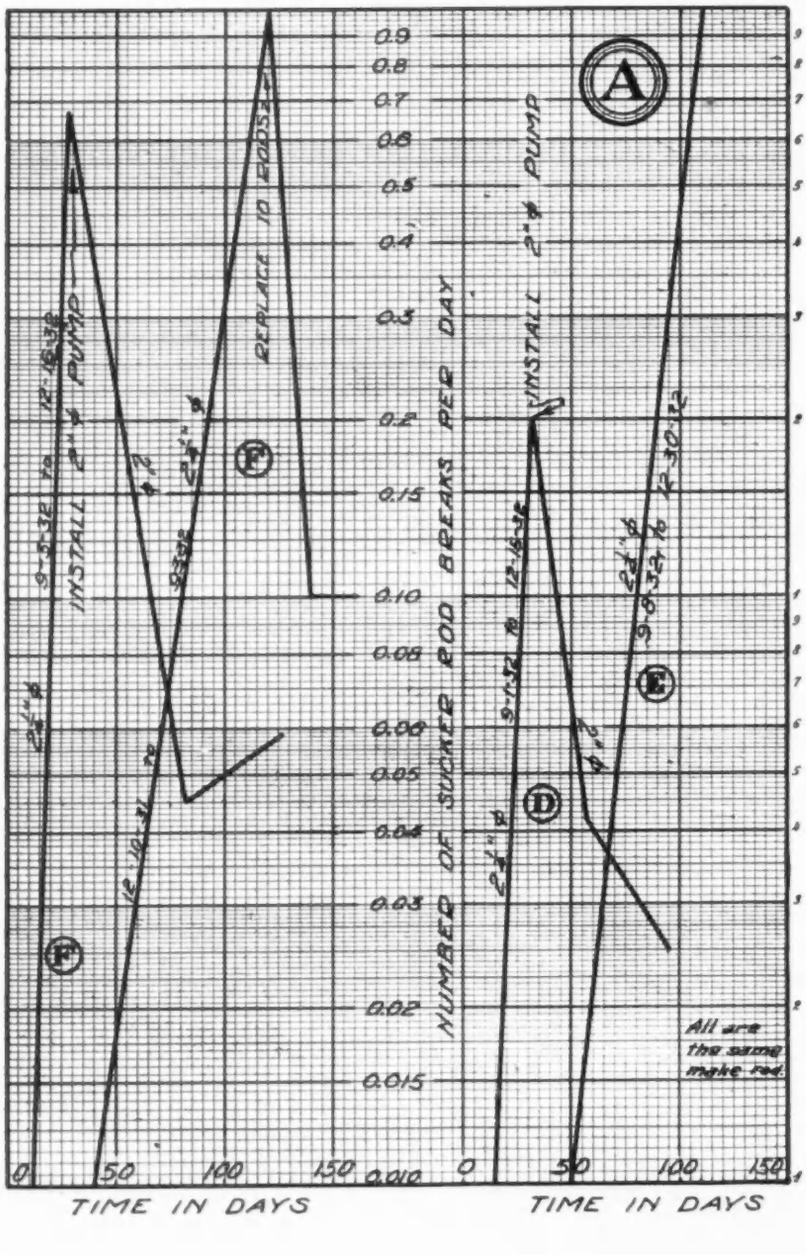
TABLE F

Well	Effective Diameter of Pump Inches	Total Fluid Produced per 24 hrs. Barrels	Strokes per Minute	Length Polish Rod Stroke Inches	Apparent Volumetric Efficiency Percent	Sucker Rod Load Pounds	Reduction in Rod Load Percent
A	2¼	350	20	72	41	14,300	0
A	2¼	350	22	52	52	13,700	4
A	2	350	18	72	58	12,300	14
B	2¼	200	20	44	39	12,500	0
B	1-25/32	200	16	44	61	9,700	22
C	1-25/32	120	19	34	50	9,900	0
C	1½	120	19	34	71	8,900	10
D	2¼	744	24	72	73	19,200	0
D	2	820	25	72	98	18,100	6
E	2¼	730	22	72	78	15,700	0
E	2	730	23	72	95	14,300	9
F	2¼	731	22	72	78	16,600	0
F	2	731	24	72	91	16,000	4

In wells A, B and C (Table F) the apparent volumetric efficiency was increased showing the possibility that these wells had been pumped with a working barrel of excessive

displacement or effective diameter. It is quite probable that wells A and B, and possibly C, could be more efficiently produced with even a smaller diameter pump than the last one shown in the table. When the smaller effective diameter pumps were installed there was a reduction in the maximum sucker rod load of from 6 to 22 per cent. These rod loads are computed. The attached curves on Chart "A" show the reflection of this reduction of rod load in rod breakage. The wells shown on the curves correspond to the wells in the table. It was not possible to show this reduction in rod breakage for all wells included in the table because in many instances the rods or rig fronts were replaced at about the same time as the pump, or the rods replaced were of different make or quality than those previously used, but in these examples the pump was the sole cause of the reduction in rod breakage.

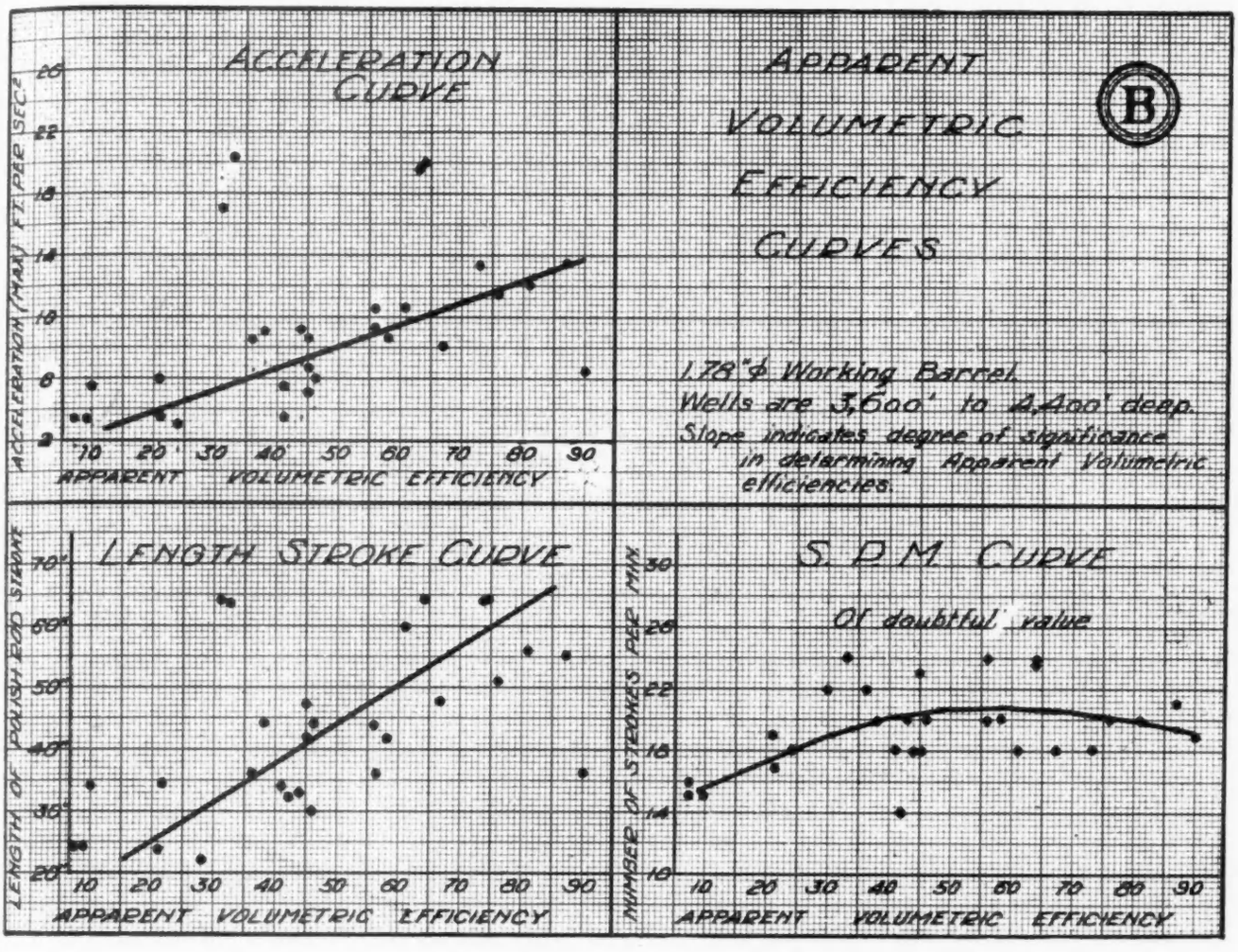
Another factor that enables these wells to produce the same amount of fluid, with a reduced effective diameter pump at approximately the same pumping speed, was the increased plunger stroke obtained. In one case the plunger actually bumped both ends of the working barrel, showing a plunger stroke relative to the cylinder of 84 inches with only a 72-inch polish rod stroke. The plunger stroke relative to the working barrel was found to increase at a rapid rate after 22 72-inch strokes per minute was reached. (See curves on Chart "D"). The condition brings out the possibility of running the well at a speed at which the deceleration of the sucker rods during the lower half of the down stroke is sufficient to throw them into enough tension as they come to a stop at the bottom of the stroke to insure that they will be more elongated at the bottom of the plunger stroke than they are at the top, thus giving greater plunger travel for the same maximum rod stress. However, this maximum load will be imposed on the sucker rods twice during the pump cycle rather than once, as is the usual case under normal pumping speeds and length strokes. But as the ability of steel to withstand repeated loads varies approximately inversely as the square of the loading above the fatigue limit in a given medium and approximately inversely only as the number of repetitions, it is quite possible that the lower maximum rod stress obtained with a smaller diameter pump will more than counteract the greater number of times at which the rods are subjected to this stress. The sucker rod operation curves (See Curves on Chart A) substantiate this. Although this same condition could be obtained with the larger diameter pump the sucker rod loads would be so high that it would be impossible to keep the rods together, as the curves indicate, and the lost production incurred during this down time is usually sufficient to counteract the increased rate of production obtained. So it has been found in wells such as these, approximately 3000 feet deep, with a small percentage of oil and very little gas, that a two-inch effective diameter insert pump will handle as much fluid at less cost over a given period of time than the 2¼-inch size pump.



An attempt was made to pump a well 3000 feet deep, 100 per cent salt water, with a 2¼-inch effective diameter pump, 25 strokes per minute, and 72-inch polish rod stroke. It was impossible to keep the rods in the well, the band wheel sheared the bolts in the flanges, and the belt, engine, countershaft and clutch gave excessive trouble. This experience shows that it will be necessary to install heavier equipment and use a stroke longer than 72 inches to satisfactorily handle over 700 barrels of dead fluid per day at this depth. We believe that more fluid would have been pumped per week with a two-inch effective diameter pump in this well than with the 2¼-inch pump used. However, the experiment was not made.

These increased apparent volumetric pump efficiencies, or the use of pumps of proper effective diameter have many other operating advantages. The barrel fills more regularly which reduced scoring, and the relative strength of the smaller valves, cups and fittings is greater, thus insuring slightly longer operations without failure. Another advantage, especially where the pump being used is much too large for the well, is the ability to materially reduce the loads on the surface equipment.

There are many examples in the older fields of equipment working under excessive loading. Engines, although of sufficient power when the well was new and the volume of gas produced was sufficient to aerate the column of fluid, are now overloaded. Pulley ratios are too low, causing bad engine and well speeds. Rig fronts and belting are much too light for the load. This overloading is


ACCELERATION CURVE
ACCELERATION (MAX.) FT. PER SEC.²
APPARENT VOLUMETRIC EFFICIENCY
APPARENT VOLUMETRIC EFFICIENCY CURVES
B
1.78"ϕ Working Barrel.
Wells are 3,600' to 2,400' deep.
Slope indicates degree of significance in determining Apparent Volumetric efficiencies.
LENGTH STROKE CURVE
LENGTH OF POLISH ROD STROKE
APPARENT VOLUMETRIC EFFICIENCY
S. P. M. CURVE
Of doubtful value
NUMBER OF STROKES PER MIN.
APPARENT VOLUMETRIC EFFICIENCY

causing higher operating costs than is really necessary, because of the excessive trouble resulting therefrom. Let us assume a well 3000 feet deep equipped with two-inch tubing; four hole crank; ¾-inch sucker rods; 1 25/32-inch effective diameter common working barrel; production 50 barrels of fluid, mainly water, per day; 18 strokes per minute; 34-inch polish rod stroke; in which the surface equipment is giving more trouble than is necessary.

$$\text{Apparent Volumetric Efficiency} = \frac{50}{0.37 \times 18 \times 34} = 22\%.$$

Sucker Rod Dead Load = $1.62 \times 3000 = 4860$ lbs.
Maximum Polish Rod Acceleration = 5.2 ft. per sec. per sec.
Sucker Rod Live Load = $1.17 \times 4860 = 5680$ lbs.
Fluid Live Load = $1.17 \times 0.433 \times (2.492 - 0.441) \times 3000 = 3100$ lbs.
Assume friction to be 500 lbs.
Total Maximum Live Load = 9280 lbs.

$$\text{Effect of gravity on counterbalance} = \frac{Wa}{g} = \frac{5.2W}{32.2}$$

Where W = effective wgt. of counterbalance
A = acceleration at point of maximum load
g = acceleration of gravity (32.2 ft. per sec, per sec.)

$$\text{Maximum up stroke unbalanced load} = 9280 - \left(W - \frac{5.2\,W}{32.2}\right)$$

$$\text{Maximum down stroke unbalanced load} = W + \frac{5.2W}{32.2} - \left(\frac{4860}{1.17} - 500\right)$$

Solving: W = 6470 lbs.

Then: $\frac{5.2W}{32.2} = 1040$ lbs.

Maximum unbalanced loads = 9280—(6470—1040) = 3850 lbs.

If the same computations are made for a 1-3/16-inch effective diameter pump, and then with the smaller pump and ⅝-inch sucker rods, the results in Table "G" will be obtained.

TABLE "G"

	I	II	III
Sucker Rod Sizes (Inches).....	0.750	0.750	0.625
Effective Pump diameter (Inches)..	1.781	1.188	1.188
Apparent Volumetric Efficiency....	22%	50%	50%
Maximum Sucker Rod Stress (lbs. per sq. inch).....	21,000	16,300	17,600
Reduction in Sucker Rod Stress....	0	22%	16%
Maximum Unbalanced rig load, lbs.	3850	2650	2065
Reduction in Rig Load.....	0	31%	46%
H.P. required at Polish Rod.....	5.6	2.6	2.5
Reduction in Polish Rod H.P.....	0	53%	55%

It may be seen from the above that the simplest method of reducing the sucker rod load and the surface equipment load is to install a pump with the proper effective diameter.

It is an easy matter to compute the apparent ideal displacement of a pump i. e., the displacement of a pump with the effective diameter known, the length stroke of the pump relative to the ground assumed to be equal to the polish rod stroke, and no allowance made for fluid slippage past the seal or the valves of the pump. I find that the attached table facilitates this computation. This apparent displacement must be corrected by a factor called the apparent volumetric efficiency to obtain the actual recovery of fluid per day that the pump chosen will put out.

This apparent volumetric efficiency is determined by the following factors: fluid level, gas produced, depth of a well,

friction of pump, friction of fluid passing through pump, straightness of the well, length of stroke and number of strokes per minute. As a general rule wells of high fluid level will permit pumps to function with higher apparent volumetric efficiency than those of low fluid level. We have observed many wells in which the pumping fluid level is high and which were producing a gas-free fluid with an apparent efficiency ranging from 90 to over 100 per cent. We have other wells in which the pumping fluid level is so low that you can tell the condition of the pump by observing the manner in which it is pounding. In these wells the apparent efficiency ranges from 10 to 30 per cent. Both classes of wells being produced at what we consider a maximum economic rate with the machinery with which they are equipped.

Gas is probably the most doubtful item in estimating what apparent volumetric efficiency can be expected from a given diameter pump. It may cause gas lock, or may aerate the column sufficiently to materially reduce the load. A gas anchor may help and may not. Usually the presence of gas tends to decrease the apparent efficiency. On the attached curve, Chart "D", the top well labeled "D" corresponds to the well so labeled in the Table "F." Although wells I, II and III have comparative maximum loads and are of comparative depth, it will be noticed that the load at the bottom of the stroke at 25 strokes per minute, is only 2500 pounds greater than the load at the top of the stroke in Curve I, 6000 pounds greater in Curve II at 27 strokes per minute, and 7500 pounds greater in Curve III at 26 strokes per minute. Maximum acceleration at these speeds is in the order named — 25.0, 25.2 and 23.7 feet per second, per second. The maximum variation is six per

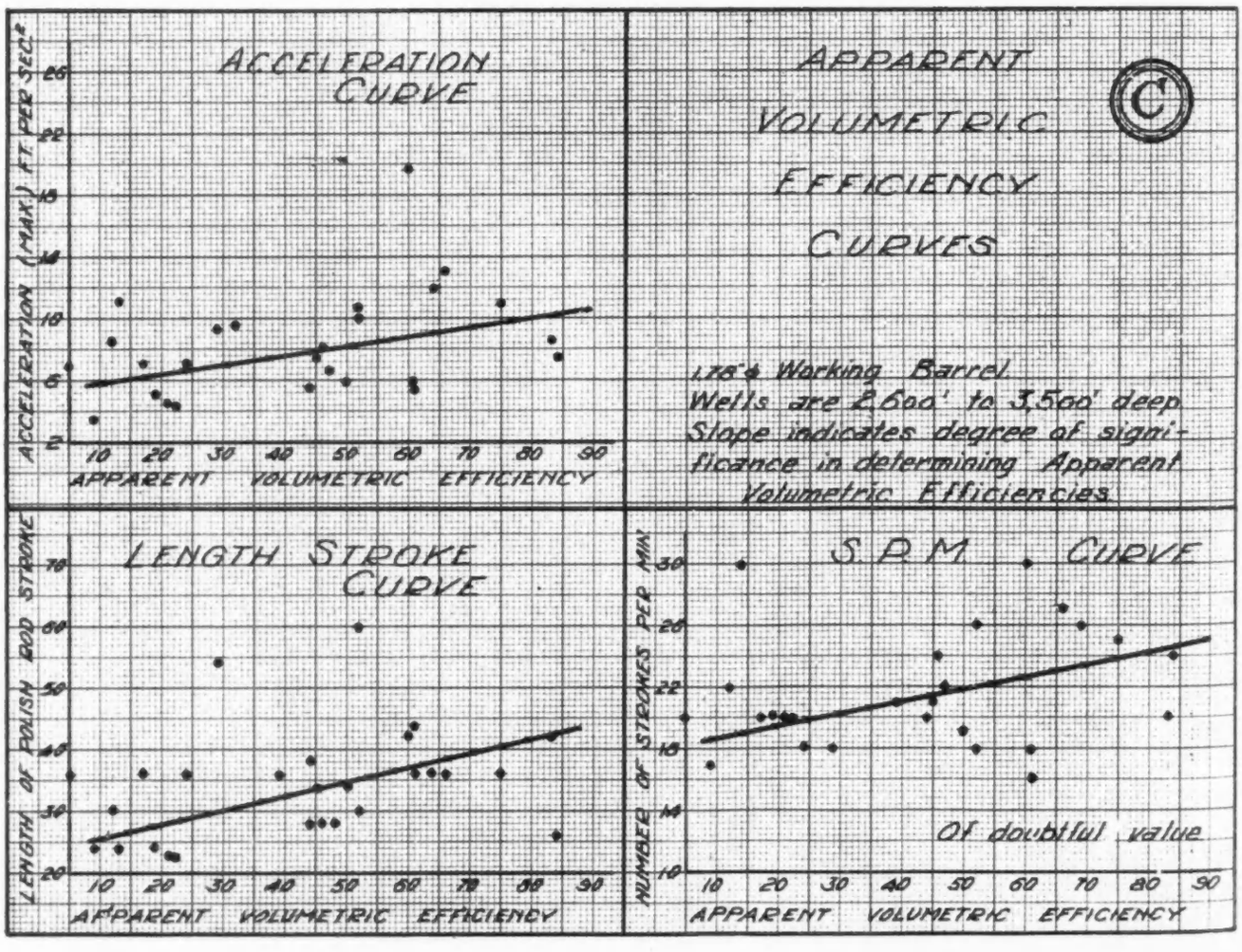
OIL WELL PUMP DISPLACEMENT TABLE

Diameter of Plunger Inches		Area of Plunger Sq. Ins.	F	f
1	1.000	0.785	0.117	0.00340
1⅛	1.125	0.994	0.148	0.00430
1-3/16	1.188	1.106	0.164	0.00479
1¼	1.250	1.227	0.182	0.00531
1⅜	1.375	1.485	0.220	0.00643
1½	1.500	1.767	0.262	0.00765
1⅝	1.625	2.074	0.308	0.00898
1¾	1.750	2.405	0.357	0.0104
1-25/32	1.781	2.492	0.370	0.0108
1-15/16	1.938	2.948	0.437	0.0128
2	2.000	3.142	0.466	0.0136
2⅛	2.125	3.547	0.526	0.0154
2¼	2.250	3.977	0.590	0.0172
2⅜	2.375	4.430	0.657	0.0192
2-7/16	2.437	4.666	0.692	0.0202
2½	2.500	4.910	0.729	0.0213
2¾	2.750	5.941	0.882	0.0257
3¾	3.750	11.05	1.640	0.0478

Displacement = SPM × L × F (Bbls. per 24 hrs.)
= SPM × L × f (Gal. per min.)
SPM = Number of Pump Strokes per min.
L = Length Stroke in Inches

$$F = \text{Constant} = \frac{\text{Cu. Ins. per Inch Stroke} \times 60 \times 24}{231 \times 42}$$

$$f = \text{Constant} = \frac{\text{Cu. Ins. per Inch Stroke}}{231}$$



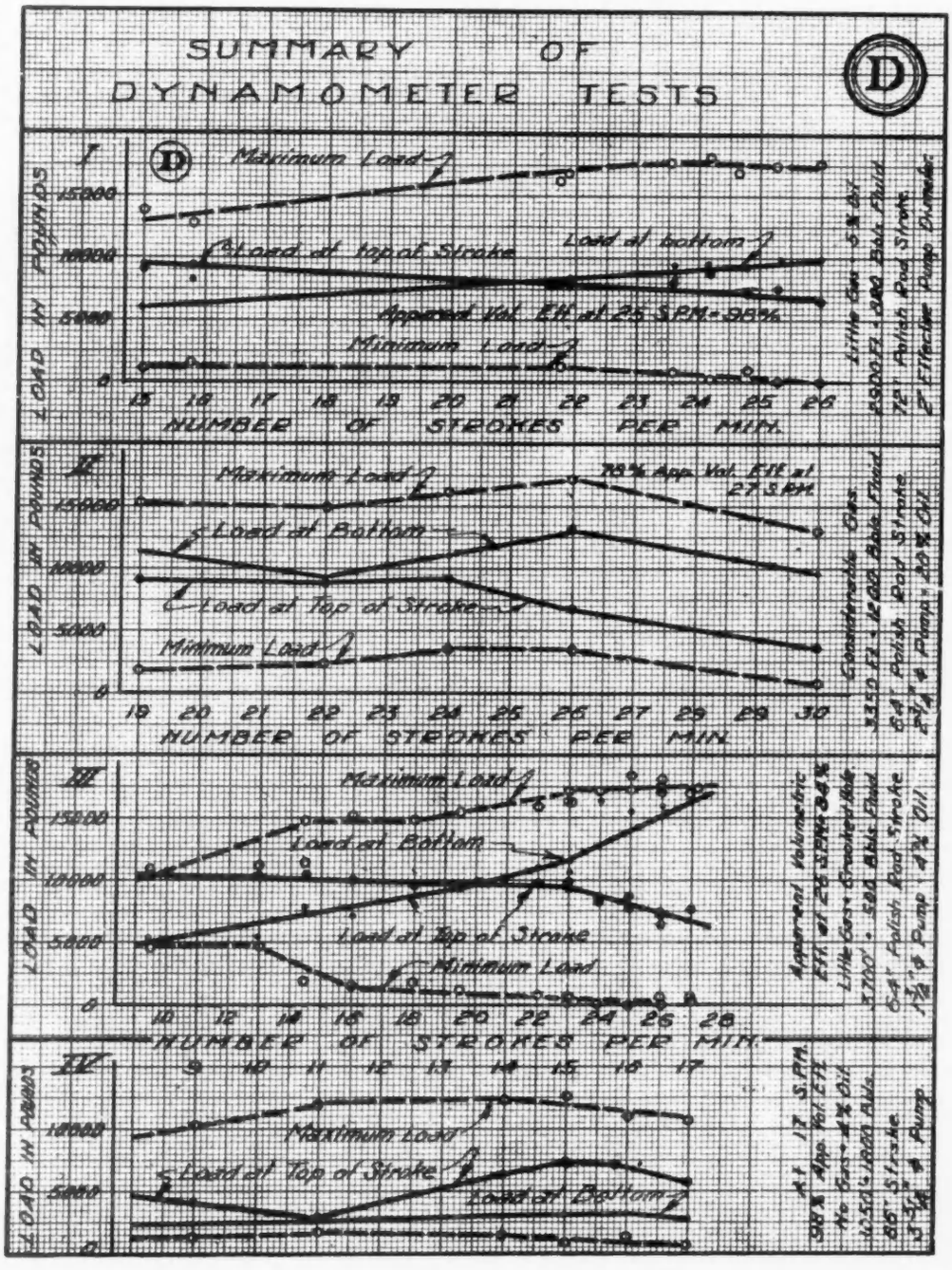
cent, while the differential loads may vary as much as 300 per cent. If the modulus of elasticity of these three sucker rod strings (not to be confused with the modulus of elasticity of steel) were the same it would be natural to suppose that the amount of increased plunger travel would be proportional to this load differential.

Wells I and II are equipped with the same make of rods. These rods had been in the wells for about the same length of time when the tests were made. As the pumping speeds are about the same and both wells fairly straight, it is safe to assume that the modulus of elasticity for the two strings of rods is approximately the same. If this is so, then well II has a proportionally longer plunger stroke than well I, but the apparent volumetric efficiency of well II is less than well I. As well II produces considerable gas through the tubing and is pumping by heads, this appears to be a clean cut example of where gas materially reduces the volumetric efficiency of the pump. As this gas also reduces the maximum sucker rod load (if well II were producing fluid of specific gravity equal to 1.0 the load is estimated to be 26,000 pounds), it may be seen that the presence of any material quantity of gas enables the operator to use a relatively larger pump diameter with reasonable sucker rod breakage.

It is possible that in these curves I, II and III, the differences in this differential load may be attributed to the friction of the plunger in the cylinder. I is a cup pump; II is a plunger pump with 0.007 inch clearance; III is a patented pump that is considered very "free running."

Curve III shows a maximum load of more than 2500 pounds greater than this load should be. This is probably caused by the crooked hole. We know that the 1¼-inch pump installed in this well is the largest effective diameter pump that can be used without excessive rod trouble. So in this case we have been able to counteract a detrimental effect of the crooked hole by obtaining greatly increased plunger travel, through the use of a smaller diameter pump that is practically frictionless, high pumping speeds, and long stroke.

With normal pumping speeds (maximum polish rod acceleration of four feet per second to 12 feet per second, per second, or 14 30-inch strokes per minute to 20 54-inch strokes per minute). Curves B and C attached may be used to assist in computing lost plunger stroke. These curves were derived by plotting wells of comparative depth and similar sub-surface conditions. They were made up in an attempt to learn whether the length stroke or the number of strokes per minute, or a combination of both, was most significant. A glance at the curves will show that the length stroke has more bearing on the apparent volumetric efficiency than the others, and that the deeper the well the greater will be its effect. The other curves do not appear to be of much consequence, although it will be noticed that as the maximum acceleration increases, or the number of strokes per minute increase, the apparent volumetric efficiency also increases. It is interesting to note that the average apparent volumetric efficiency for the 3600-foot to 4400-foot wells is 47.2 per cent, while it is only 41.2 per cent for those ranging from 2600 feet to 3500 feet in depth. This brings out that the deeper wells demand more care in the choice of the correct pump diameter than the others, and that when this care is given better pump efficiencies are obtained, or an increased amount of fluid is recovered with less effort.



Instruments *for* Measuring Subsurface Pressures

FIVE years ago the measurement of subsurface pressures was classed as a highly theoretical experiment to be engage in only by those engineers so fortunate as to be employed by companies in an experimental frame of mind. Recently one of the largest oil producing areas in the world was placed under proration orders which were based fundamentally on subsurface pressure data. For several years engineers have been convinced that a thorough knowledge of subsurface pressures in oil fields would enable them to cope with many of the problems heretofore solved by the use of formulas containing a large number of important unknowns. High cost of the early instruments and the inability of engineers to name definite uses to which such information could be profitably applied prevented executive departments from responding to the idea.

The radical change of attitude which has been evidenced during the past three years is not due to any tendency to become "experimental minded" but to the design and construction of a number of relatively simple and economical instruments, the accuracy of which closely approach that of laboratory equipment. Application of subsurface pressure information is now beyond the point of speculation. Several very excellent papers presented before the technical societies during recent months, have pointed out the widespread uses to which such information may be devoted. However, during this three year period much effort has been devoted to the problems involved in designing and constructing precise instruments of such proportions as to make them practical for use under modern production methods. Initial costs also have played a prominent part in controlling design and construction of the nine principal instruments now in use.

An attempt will be made herein to point out the principal features of design and construction of these instruments and to describe briefly the procedure of measuring subsurface pressures with each.

To facilitate description of the various instruments it seems advisable to use some method of classification. In a general way the instruments now in use may be divided into two classes; namely, direct reading and indirect reading. In the first class final results are read directly while in the latter class interpretation and calculation are necessary to reduce the indicated reading to final results. Other classifications may be based on the methods of recording results, whether by dial or chart, by the type of pressure element, such as Bourdon tube or helical tube gauge, or by the general manner and type of recording. Since the latter classification seems to furnish the most logical means of differentiating between the instruments in present usage it will be followed in subsequent discussion:

Classification of Subsurface Pressure[1] Instruments According to Means of Indicating Results

1. Maximum registering.
2. Indicating.
3. Selective or intermittent recording.
4. Continuous recording.
5. Continuous indicating and recording.

Figure 1 shows three instruments of the maximum recording or registering type. This type of instrument operates on a principal similar to that of the medical thermometer by indicating the maximum condition through which it is passed. The record is held until the instrument is manually altered in preparation for other tests. Figure 1-A, represents probably the simplest and most inexpensive of all of the instruments. It consists fundamentally of an inverted tube or shell provided with a simple check valve at the bottom and a connection for attaching a common indicating pressure gauge. The instrument is lowered into a well and a sample of fluid admitted into the chamber under conditions of the test point temperature and pressure. Upon starting to remove the instrument from the well a pressure differential is set up between the inside of the shell and the area surrounding it. This causes the check valve to close and retain the sample under pressure conditions existing at the point to which the instrument was lowered. Upon taking the instrument from the well the pressure gauge is at-

[1]Classification devised by D. G. Hawthorn, Barnsdall Oil Company, Tulsa.

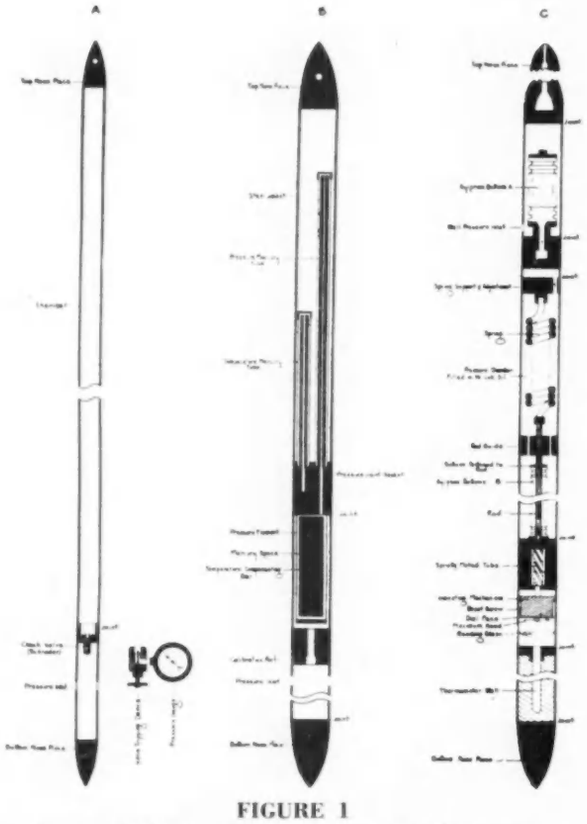
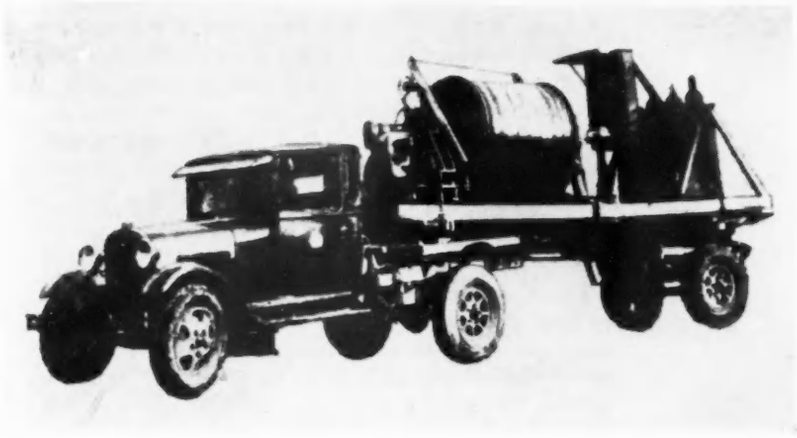
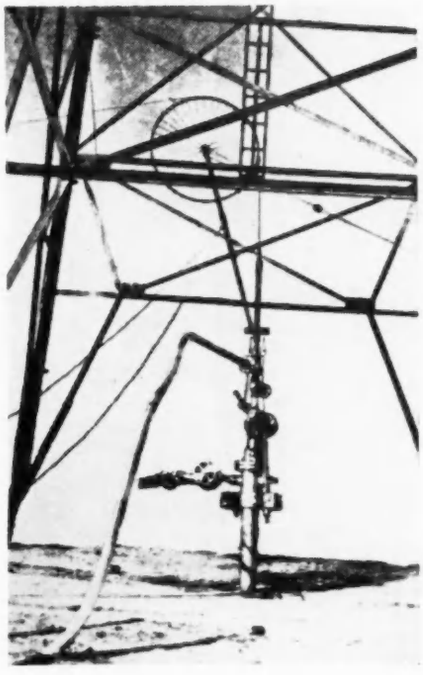


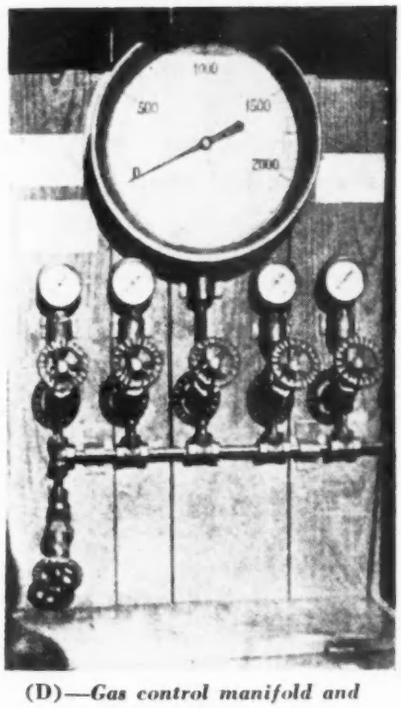
FIGURE 1
Group of Maximum Indicating Type Instruments



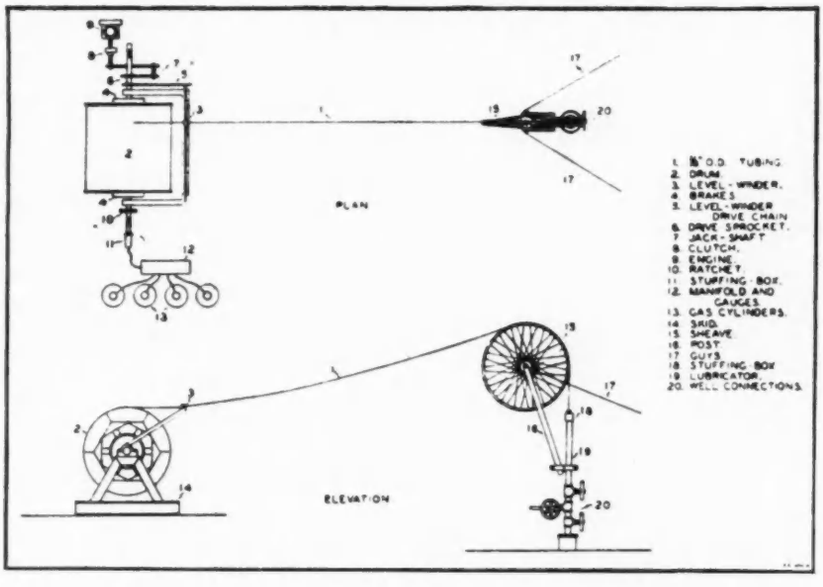
(A)—*View of Gulf apparatus, showing auxiliary hoisting engine, tubing drum, pressure gauge manifold box and rack of hydrogen cylinder.*



(C)—*Sheave and lubricator hook-up on well.*



(D)—*Gas control manifold and pressure gauges.*



(B)—*Diagramatic layout of Gulf sub-surface pressure apparatus.*

FIGURE 2

Gulf apparatus for measuring sub-surface pressures through means of top-hole indicating gauges

tached, the check valve manually tripped, and the pressure indicated directly. The operation is simple and the instrument stands up well under hard field usage. However, since no temperature corrections can be made with ordinary field equipment and the complex problem of gas solubility unquestionably effect results, the instrument probably should not be used for more than rough checking.

Figure 2-B shows another type of the maximum indicating instruments. In addition to being unique in design, rugged and relatively inexpensive, this instrument has the advantage of registering both maximum pressure and maximum temperature. It also may be adapted for continuous recording of temperatures and pressures. The instrument utilizes the flexure of a square seamless alloy tube of high tensile strength to displace a fluid in a capillary glass tube. The loss of displaced fluid is measured directly. By means of a long hypodermic needle the pressure element and capillary gauge tube are filled with mercury to the top. The temperature bulb and gauge tube are filled likewise. Metal guards protect the capillary tubes. Caps are screwed on top

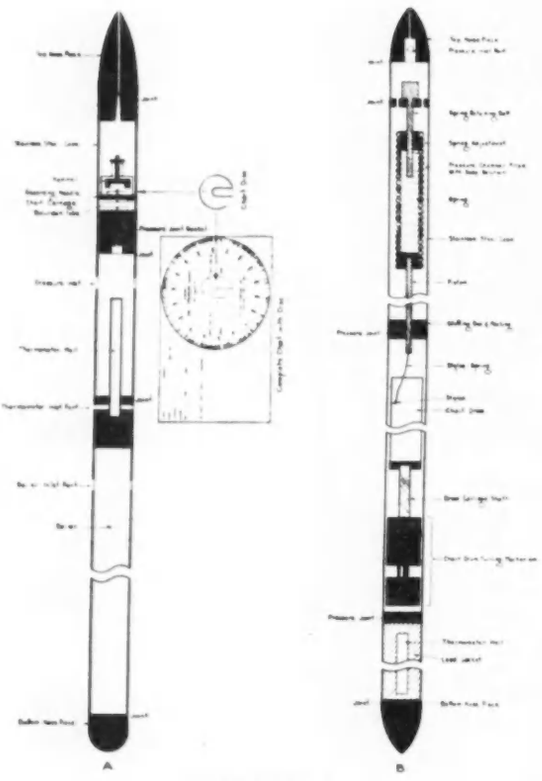


FIGURE 3
Showing Instruments of the Selective Recording Type

of the metal guards leaving only a small notch which permits fluid to escape from the capillary tube. As the instrument is lowered into the well, pressure enters through the lower portion of the shell, compresses the seamless tube pressure element, and causes the mercury to be squeezed from the capillary tube. When pressure is released at the surface the mercury column drops proportionately to the amount of pressure encountered. Drop of the mercury column is measured from a scale stamped on the metal guards and pressures are read from a calibration chart. The pressure system is compensated for temperature changes of the instrument by means of a bar of low expansion alloy which fills most of the space in the element. This bar is of such size that a balance is obtained between thermal expansion of the square pressure tube and the opposite expansion of the small amount of fluid. Maximum temperatures are obtained in the same manner

Figure 1-C illustrates a maximum registering gauge of intricate design, yet its fundamental principles should be easily understood. Pressure from without is admitted through the ports to a Sylphon bellows "A" near the top of the instrument. This bellows acts as a seal between the well fluids and the lubricating oil retained between the two sets of bellows "A" and "B." Pressure on bellows "A" is transmitted through the oil to bellows "B", the lower end of which is fastened to the body of the instrument while the upper end is fastened to a rod. Upper end of the rod is fastened to a coiled spring, which in turn is fastened to the body of the instrument. Pressure transmitted through to bellows "B" compresses it downward thus drawing the rod downward against the resistance of the coiled spring. To the lower end of the rod is attached a pin, which, moving in a spirally fluted tube, rotates the maximum pressure indicating hand. The hand is held against the dial by a spring. When pressure is released all of the mechanism, except the maximum pressure hand, returns to its original position. After the bottom nose piece is removed position of the maximum pressure hand is read through a magnifying glass installed in the lower portion of the shell. When the reading is completed the hand is again set at zero position, the nose piece replaced, and the instrument is in readiness for another operation. A temperature correction factor is applied to the indicated reading.

Indicating Instruments

This classification includes those instruments which must be read directly on a dial while the pressure element is being subjected to test point pressures. Obviously, such an instrument requires means for indicating results at the surface. Figures 2 and 5 are representative of the type. Since apparatus shown in Figure 2 was fully described in the April 4, 1932, issue of The OIL WEEKLY no attempt will be made here to do more than present its fundamental features. The main feature of the design is the use of a continuous string of ⅛-inch tubing having a 1/16-inch bore. The tubing string is run to the desired test point where it is filled with high pressure gas under sufficient pressure to bring about a balanced condition in the well. The amount of pressure required to bring about this condition is read at the surface and the indicated reading corrected by adding the calculated weight of the gas column. The instrument shown in Figure 5 has the additional feature of continuous recording and will be discussed under that classification.

Selective Recording Instruments

Two instruments of the selective recording type are shown in Figure 3. Instruments of this type record a series of readings at predetermined intervals of time or when-

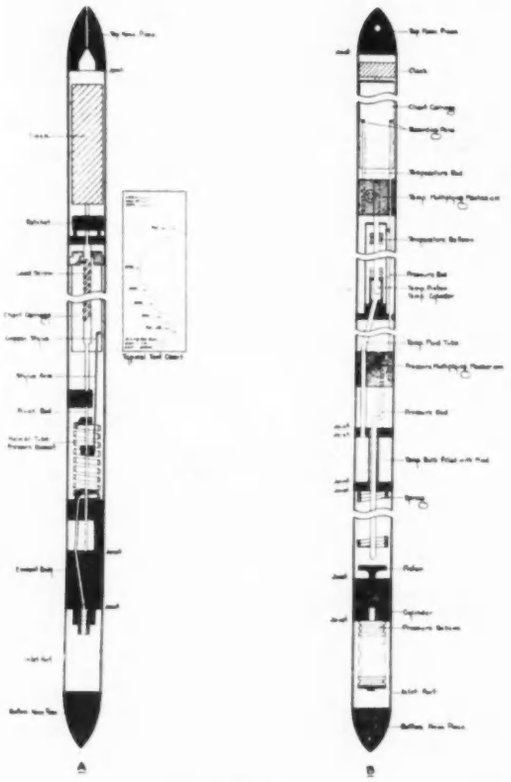


FIGURE 4
Continuous Recording Type Instruments

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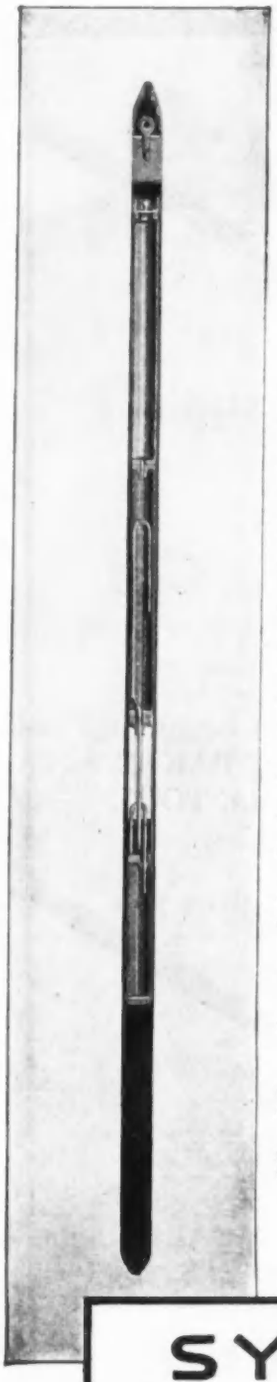

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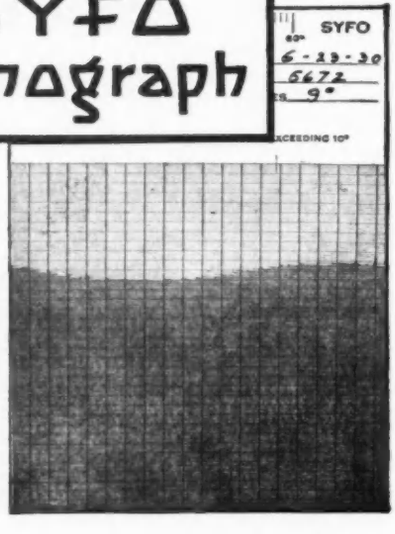

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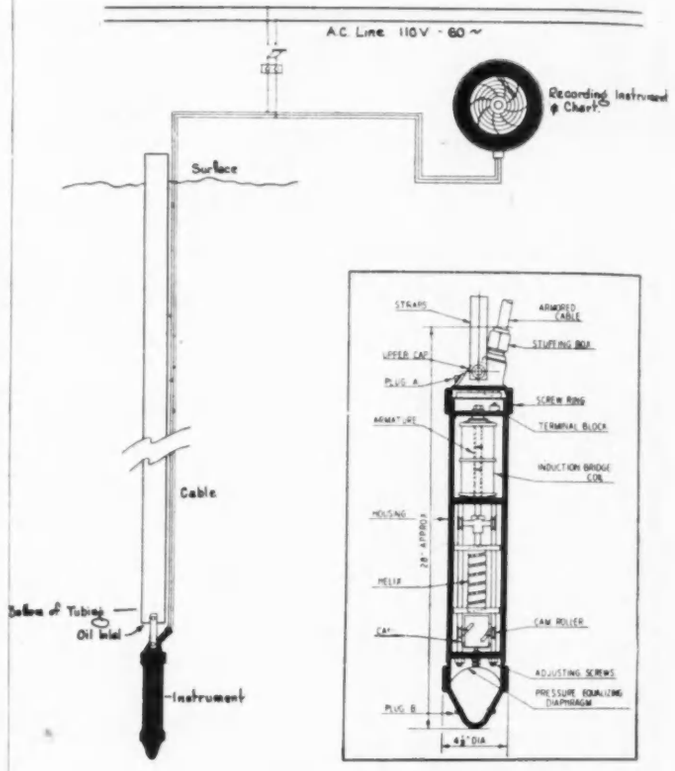

FIGURE 5

Instrument for permanent installation on bottom of Tubing. Has feature of continuously recording and indicating sub-surface pressure.

ever the operator chooses, thus distinguishing them from the continuous recording type. Figure 3-A, shows a selective recording instrument whose pressure element is a Bourdon tube. Pressure admitted through ports in the upper portion of the stainless steel case, is led through the body of the instrument to the Bourdon tube. When pressure is applied to the tube it tends to straighten and in so doing rotates a centrally pivoted shaft to which is attached a recording needle. A light weight is suspended above the needle on a spring in such manner that any sudden stop or jerk of the line on which the instrument is supported caused the weight to strike the needle. The needle in turn makes an impression on the chart disc. The chart disc is placed in the calibration chart for interpretation. Several readings may be made successively but all must be taken in one direction in order that they be identified. The instrument is also provided with an electrical means of striking the recording pin, thereby eliminating the uncertain feature of jerking the line. This latter feature is so designed that the pin is electrically driven at predetermined intervals of time.

A second type of selective recording instrument is shown in Figure 3-B. Well pressure admitted at the inlet port acts upon the fluid (soap solution) contained in the chamber. Pressure is transmitted through the fluid to a piston attached to a coil spring. The lower end of the piston passes through a specially designed stuffing box into the chart drum chamber. To the end of the piston is attached a stylus spring and stylus. The chart drum is rotated by means of a mechanism located in the lower portion of the shell. Upon a sudden stop of the instrument or a jerk of

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the suporting line, the drum is turned to a new position. In this manner any reasonable number of desired readings may be taken. This instrument has the advantage of being only 1⅛ inches in diameter.

Continuous Recording Instruments

Figure 4-A shows a continuous recording instrument whose pressure element is a helical tube. The principal parts of the apparatus are the clock, chart carriage, lead screw, and pressure element. The pressure element is attached to a centrally pivoted rod to which is attached the stylus arm. The helical tube is designed with a sufficient number of convolutions to permit ample movement of the stylus arm without the use of multiplying linkage. Pressure enters through ports located in the lower portion of the shell and is transmitted through the helical tube. Thus the stylus arm is moved in proportion to the pressure encountered. Through use of the clock the lead screw is moved downward and in turn the recording drum is moved against the stylus. This feature is opposite in principal from other types of continuous recording instruments in which all records are made on a stationary chart. During approximately three years of service this instrument has been used in several hundred wells and its accuracy is said to be within the limits of one per cent error.

A second continuous recording instrument is shown in Figure 4-B. As far as is known this is the only instrument in this classification which simultaneously records temperature and pressure. Its operation combines essentially the features shown in Figure 1-C and Figure 3-B. The lower pressure bellows acts a a diaphragm to transmit pressure from the well into the closed system which is filled with oil. Through movement of the bellows pressure is transmitted to the piston which in turn contacts and moves upward the rod to which a stylus is attached. Movement of the piston is against a coiled spring. By use of clock mechanism the chart is revolved against the stylus. Temperature readings are obtained through the use of a fluid filled bulb and tube. Mechanically the temperature record is obtained in the same manner as is the pressure record.

Continuous Recording With Indication Instruments

Figure 5 shows an instrument which combines the features of continuous recording with indication. This apparatus requires surface recording means. Complete description was presented in October, 1931, issue, International Petroleum Technology, page 547, by L. W. Alchorn.

Economies Effected by Chemically Treating Cooling Waters for Pumping Engines

(*Continued from page 14*)

ing water, are not available, because those engines have only operated approximately six months with a treated cooling water. Therefore, an accurate comparison of the data can not be made at this time; however, to date there has been a noticeable decrease in the necessary repairs. There has been no replacement of cylinders, cylinder heads, pistons or piston rings for these engines, and at the time of writing this paper they were in good operating condition, and will apparently continue to operate for some time before needing repairs.

Before treating the water, it was a common occurrence to have an engine run hot and, eventually, go down, from over heating.

These engines, and especially those that are operating at a high rate of speed and carrying a capacity load, since treating the cooling water, have operated continuously and at a much lower temperature.

Chemical Treatment

Various methods have been tried for cleaning the water jackets and treating the waters for pumping engines. Some of these methods have proved to be practical and economical, while the other methods tried, entailed considerable expense and proved to be impracticable.

The method selected at this time for removing the scale from water jackets consists in the treatment of the water in the circulating tank with a commercial chemical compound which has been reported to contain approximately 70 per cent tannin. The treatment requires from eight to 12 weeks for cleaning the water jackets; however, where speed of cleaning is desired or where large quantities of scale has accumulated in the water jackets the time required for cleaning can be reduced to approximately 10 days by adding to the water sufficient amounts of sulphuric acid to convert the scale-forming salts over to the non-scaling sulphate salts.

The cleaning costs per engine, when using the tannin compounds will average between 75 cents to $1.50; while the combination of the sulphuric acid and the tannin compound for cleaning will cost between $1.25 and $2.50 per engine.

After cleaning the water jackets, the treating of the make-up water with the tannin compound, which will prevent the depositing of scale, will cost between $0.015 and $0.030 per 1000 gallons.

Conclusion

The chemical treatment of cooling water is the response to the requests of superintendents and operators for a relief in the high repair costs, of internal combustion pumping engines.

The chemical treating of the various waters for the respective engines has obtained satisfactory results.

Acknowledgment

The writer wishes to express his appreciation to the superintendents and operators of the engines of Magnolia Petroleum Company for their cooperation and work given in conducting the tests for this paper.

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Varied Program Planned for Geologists' Annual Meeting

Houston, Texas.—Fields and conditions in practically all important oil producing sections of the United States as well as in some foreign countries will be discussed in papers scheduled for the program of the American Association of Petroleum Geologists at Houston, March 23-25. A wide range of subject matter is planned likewise for the programs of the Society of Petroleum Geophysicists and of the Society of Economic Paleontologists and Mineralogists, which will hold their annual meetings in conjunction with that of the geological association.

Over 40 geological and geophysical papers are included on the general technical program of the American Association of Petroleum Geologists as announced tentatively by Dr. Donald C. Barton of Houston, chairman of the committee which is handling that program; and there are nearly 20 papers on the tentative program for the sessions of the Society of Economic Paleontologists and Mineralogists as worked out by a committee headed by Merle C. Israelsky of Houston.

As hosts for the scheduled annual sessions, the Houston Geological Society chose from its membership the program committees, and likewise has various other committees at work on plans for the meeting, attending to such features as entertainment and field trips. The fields which will be inspected, according to tentative plans, include the new Conroe oil pool, Montgomery County, on Saturday afternoon, March 25; and Sugar Land and Boling, Fort Bend County, on Sunday, the Boling field being the scene of sulphur mining operations as well as petroleum production.

Contrary to the erroneous idea which has apparently gained considerable circulation to the effect that Gulf Coast fields will be given particular emphasis, the general program is well rounded out and varied in scope, with subject matter calculated to include material of interest to all attending the meeting.

Geological and Geophysical Papers

Listed by authors, alphabetically, the papers which are planned for the general technical program are as follows: A. A. Baker and C. H. Dane, Structure of Southeastern Oklahoma; A. A. Baker, C. H. Dane, and J. B. Reeside, The Pennsylvanian Salt Bearing Formation of Eastern Utah and Western Colorado. Donald C. Barton, C. H. Ritz, and M. Heckey, The Gulf Coast Geosyncline; Donald C. Barton, Surface Fractures of South Texas; Donald C. Barton, Geophysical Survey of the Munich Tertiary Basin, Bavaria; Olin G. Bell, Carolina-Texas and Laurel Fields, Texas; M. N. Bramlett, Origin of the Miocene Siliceous Rocks of California.

D. M. Collingwood and F. E. Heath, A Study of Bottom Hole Pressures within the East Texas Field; A. R. Dennison, A. E. Oldham, and J. W. Kisling, Structure and Stratigraphy of the Kelsey Dome, Upshur County, Texas; Robert H. Dott, Structural History of the Arbuckle Mountains, Oklahoma; J. Brian Eby, Review of Developments in the Gulf Coast during the Recent Past; Alva C. Ellisor, The Jackson Formation of the Gulf Coast; H. L. Griley, Preliminary Discussion of the Triassic of Southwestern Oklahoma.

Marcus A. Hanna and Albert G. Wolf, Texas and Louisiana Salt Dome Cap Rock Minerals; J. Harlan Johnson and A. E. Brainerd, The Mississippian of Colorado; J. Harlan Johnson and A. E. Brainerd, Upper Paleozoic Red Beds of Colorado; H. V. Howe, Review of the Tertiary Stratigraphy of Southern Louisiana; J. S. Irwin, Cut Bank Field, Montana; W. P. Jenney, Experimental Interpretations of Magnetic and Gravometric Anomalies; S. A. Judson, Overhangs on the Gulf Coast Salt Domes.

W. G. Kane and Guy B. Gierhart, Areal Geology of the Eocene North of the Rio San Juan, Northeastern Mexico; P. B. King, Some Structural Features of Trans-Pecos, Texas; F. H. Lahee, Petroleum Geology; A. I. Levorson, Studies in Paleogeology; H. D. Miser, Relation of the Ouachita Geosyncline to the Oil and Gas Fields of the Mid-Continent Region; R. B. Newcombe, Results of Acid in Limestone Producing Formations; P. H. Obannon and W. B. Carter, Sugar Land Oil Field, Fort Bend County, Texas.

F. B. Plummer, Wilcox Formation of Texas; W. Armstrong Price, Origin of Caliche and the Reynosa Problem of South Texas; W. Armstrong Price, Possible Role of Diastrophism in the Topography of the Corpus Christi Area, South Texas; R. D. Reed, Oil Bearing Pliocene Beds of Southern California; L. W. Stephenson, the Zone of *Exogyra cancellata* traced 2500 Miles.

L. P. Teas and C. M. Miller, Raccoon Bend Oil Field, Austin County, Texas; W. T. Thom, R. T. Chamberlin and W. H. Bucher, The Results of Structural Research Work in the Beartooth-Bighorn Region; P. D. Trask, Preliminary Study of Source Beds of Four Oil Producing Regions, Santa Fe Springs, California, Salt Creek, Wyoming, Central Oklahoma, and East Texas; P. D. Trask, Preliminary Study of Source Beds in the Mesozoic Rocks on the West Side of Sacramento Valley, California.

H. R. Van Gilder and H. Rogers, Geology of Potter and McKean Counties, Pennsylvania; C. E. Van Ostrand, Some Possible Application of Geothermics to Geology; Paul Weaver, Relation of Geophysics to Geology; R. B. Whitehead, Kemp, and Tash, Experiments on Permeability; and H. D. Wilde, The Value of Gas Conservation and Efficient Use of Natural Water Drive as Demonstrated by Laboratory Models.

Among the above papers are some which will probably be transferred from the general program to the programs of the geophysicists and the paleontologists.

Paleontological Papers

The papers which are scheduled tentatively for the program of the Society of Economic Paleontologists and Mineralogists include the following, listed by authors, alphabetically: John R. Ball, *Baindridgia typicalis,* a New Genus of the Silurian Auloporidae; William M. Cogen, Some Suggestions for Heavy Mineral Investigations; C. L. Cooksey, Significant Micro-Fauna from the Boggy Formation of Oklahoma; G. M. Harris, New Species of Foraminifera and Ostracods from the Duck Creek and Fort Worth of Southeastern Oklahoma; R. W. Harris, New Species of Fayetteville Ostracods from Washington County, Arkansas; R. V. Hollingsworth, Paleontological Notes Concerning the Savana Formation in the McAlester Quadrangle, Oklahoma; H. V. Howe, Apertural Characteristics of the Genus *Hantkenina.*

H. A. Ireland, Insoluble residues as a Criteria for .Pre-Pennsylvanian Correlation in Oklahoma; Dan J. Jones and J. Willis Stoval, Notes on a New Occurrence of *Petrodus;* J. Harlan Johnson, The Geological History of Lime Secreting Algae; J. Harlan Johnson, Fossil Algae from the Carboniferous of Central Colorado; William B. Kramer III, *Glausoceras,* a New Carboniferous Actinoceroid; F. B. Plummer, Important Zone Fossils of the Tertiary and their Identification; Rudolf Ruedmann and Charles E. Decker, The Graptolites of the Viola Limestone; John S. Sandige, Foraminifera from the Jurassic of Montana; H. B. Stenzel, The Genus *Buccitriton* as Subsurface Guide Fossil; and H. C. Vanderpool, Lower Marine Miocene at Stratton Ridge, Brazoria County, Texas.

MARKETS ~ STATISTICS

Higher prices paid for low octane U. S. Motor. East Texas Gasoline stronger. Mid-Continent Producers waiting for better price. Five states responsible for crude production increase.

Rumored Crude Increase Helps Refined Oil Market

RUMORS of improved prices for Mid-Continent crude oil appeared to have a marked effect on the refined products market when practically all materials showed increased steadiness. Prices on low octane U. S. Motor fuel had increased one eighth of a cent despite the fact that there was no indication of a trend for brokers to take on appreciable amounts of stock. However, there were a considerable number of steady over-night buyers. Natural gasoline likewise had shown improvement and were expected to better their position as the week end drew near. Reversal of weather conditions was reflected in a falling off of demand for the burning oils, although the increased demand during the previous week apparently had resulted in a sufficient number of orders to take care of most of the supply during the coming week or 10 days.

According to reports the East Texas gasoline situation had shown considerably more strength than in several months. Reluctance was shown on the part of refiners of that district either to quote for prompt or deferred shipment or to shade prices to any extent. Recent movement of gasoline from that district coastwise considerably relieved conditions in northern Mid-Continent market centers since most observers believe that East Texas refiners have the key to the situation. Therefore, any marked improvement in the East Texas situation is expected to be immediately reflected into the surrounding territories.

Although no increase in the demand for Mid-Continent crude has been in evidence it is commonly known that many producers are not anxious to sell at present prices. While no reports have been made of producers who have refused to sell under the present quotation, it is believed that many properties are being produced at much less than capacity, probably just enough to make expenses. During the week ending February 7, 1933, estimated daily net crude movement in Kansas and Oklahoma was 2800 barrels to storage, compared to 9300 barrels daily net to storage during the preceding period. This is the fourth successive week that movement has been directed to storage. It is being predicted that shortage of supply at present prices will force in coming weeks the withdrawal from storage.

THE OIL WEEKLY

Estimated Average Daily Production of Crude Oil, in Barrels

District: TEXAS—	Week Ending Feb. 18	Feb. 11
Texas Panhandle	42,325	45,175
North and West Central Texas	72,100	72,300
West Texas	159,025	159,525
East Central Texas	58,200	56,200
East Texas Field	290,000	290,000
South Texas	54,000	53,275
Total Texas Outside Gulf Coast	675,650	676,475
Texas Gulf Coast	132,050	120,600
Total Texas	807,700	797,075
OKLAHOMA—		
Oklahoma City	127,120	87,250
Seminole Area	127,135	117,000
Other Oklahoma	173,685	169,495
Total Oklahoma	427,940	373,745
KANSAS—		
Ritz-Decker	21,730	22,310
Voshell	7,230	4,890
Other Kansas	73,450	72,075
Total Kansas	102,410	99,275
LOUISIANA—		
North Louisiana	29,375	29,850
Louisiana Gulf Coast	35,200	32,400
Total Louisiana	64,575	62,250
ARKANSAS	30,650	32,000
CALIFORNIA—		
Long Beach	68,000	67,000
Santa Fe Springs	53,000	54,300
Huntington Beach	26,000	24,800
Dominguez	18,000	18,300
Inglewood	12,200	12,200
Ventura Avenue	37,400	37,400
Seal Beach	11,300	10,800
Midway-Sunset	48,000	47,700
Elwood	13,700	12,200
Kettleman Hills	56,000	55,300
Playa del Rey	12,200	12,200
Other California	113,200	111,800
Total California	468,000	464,000
MOUNTAIN STATES—		
Wyoming	30,750	31,450
Montana	5,350	5,650
Colorado	2,450	2,650
New Mexico	37,150	36,850
Total Rocky Mountain States	75,700	76,600
EASTERN STATES	87,800	91,000
MICHIGAN	15,150	15,700
Total United States	2,079,925	2,011,620

Murray Predicts Price Increase in 30 Days

Governor William H. Murray, apparently sensing the general feeling that crude oil prices will go up soon, has predicted that an increase will be forthcoming within 30 days. The governor bases his forecast on "the fact that I know every major pipe line company in the United States agreed in New York last week not to buy any more 'hot' oil. There wouldn't be any 'hot' oil if there was no sale to the pipe lines would there?" Questioned as to the amount of "hot" oil in the nation today, the governor replied, "God only knows about the 'hot' oil run in the United States—but in Texas its worse than it is here."

Going prices based on Oklahoma Group 3 and exclusive of the one-cent federal tax seemed to be as follows:

Refinery Gasolines

Low octane U. S. Motor fuel, 2 to 2⅜ cents; middle octane, 2⅜ to 2½ cents; high octane, 2⅝ to 2¾ cents; 60-62, 400 e.p., 2⅜ to 2½ cents; 64-66, 390 e.p., 2½ to 2⅝ cents; 64-66, 375 e.p., 2⅝ to 2¾ cents; 68-70, 350 e.p., 2¾ to 2⅞ cents.

Natural Gasolines

Low gravity, 11 to 12 pound vapor pressure, 3¼ to 3⅜ cents; 14 to 15 pound vapor, 2⅞ to 3 cents; 16 to 18 pound vapor, 2½ to 2⅝ cents; 22 to 24 pound vapor, 2¼ to 2⅜ cents.

Kerosenes

The 41 to 43 gravity, water white specification, 2½ to 2⅝ cents; 42 to 44 gravity, 2⅝ to 2¾ cents; and 44 to 46 gravity, 2⅞ to 3 cents.

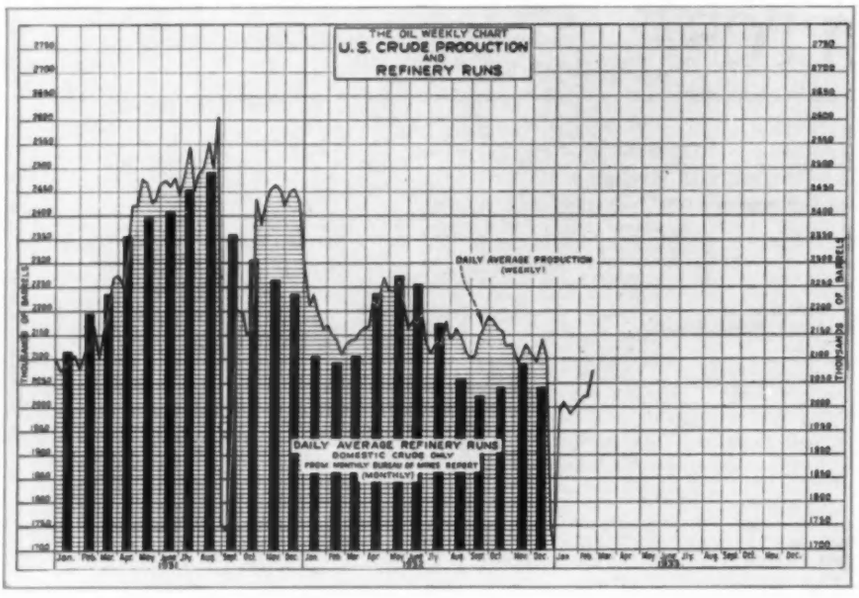
United States Production Gains 68,305 Barrels

UNITED States crude oil production shot upward during the week ending February 18, averaging 2,079,925 barrels daily or 68,305 barrels more per day than for the previous seven-day period, the sharp increase coming about through substantial gains in each of the five leading producing states, Oklahoma, California, Texas, Louisiana and Kansas.

Of those mentioned states Oklahoma furnished the most conspicuous increase, producing 427,940 barrels daily as compared with 373,745 barrels per day the previous week. Oklahoma City and the Seminole district registering gains of 40,000 and 10,000 barrels, respectively, in daily average, while other fields of the state in the aggregate increased by 4000 barrels.

An increase of 10,000 barrels in daily output for Texas occurred on account of a 12,000-barrel gain for the coastal district fields, which averaged 132,050 barrels daily. A decline for the Panhandle district, due to cold weather, was almost cancelled by an increase in East Central Texas, brought about by a rise at Van.

California continues producing considerably more than the official allowable, the average of 468,000 barrels for the week of February 18 representing a 4000-barrel



gain above the previous week's figure. The increase was the net result of small increases in various fields.

Production at Kettleman Hills may be increased to aproximately 60,000 barrels daily, as compared with about 56,000 barrels for the past two weeks, since operators there are dissatisfied with lack of cooperation of producers in the Los Angeles basin fields, who were expected to achieve reduction of excesses. The agreement was that Kettleman Hills would be reduced to 55,000 barrels daily and that fields which had been overproducing would also meet their allowables. The immediate outlook is very dark, and voluntary curtailment of crude oil production is facing a real crisis, according to Ralph B. Lloyd, president of Oil Producers Sales Agency.

Along with the "big three" of the oil producing states, Oklahoma, California, and Texas, the states of Kansas and Louisiana, ranking next after those leaders, likewise registered increases in production rates. Kansas output of 102,410 barrels daily was a gain of over 3000 barrels, and Louisiana gained more than 2000 barrels in averaging 64,575 barrels daily, the coastal district of the state being responsible.

California Output Again Begins Upward Trend

MUCH of the advantage gained two weeks ago in California has been lost, and production has been creeping up from a minimum of about 445,000 barrels. This lowest figure was recorded only during a day or two, but it showed what might be done under proper efforts. Fear that a change would be made in the price structure prompted operators to curtail to meet requirements in several fields.

Production at Kettleman Hills was brought down promptly, with the stipulation that other fields reduce their output to the allowable, and that the crude price schedule would remain unchanged. This field lived up to its agreement, but other fields have not done their part. There is danger of trouble if Long Beach, Huntington Beach and Santa Fe Springs do not meet their absolute allowable.

Recent reductions in gasoline prices pointed to lower crude oil quotations, but the slash in the gasoline price structure was prompted by efforts to meet competition of price cutters. High crude prices and low gasoline prices will make it difficult to convert oil into gasoline for sale below the market.

Despite a considerable overproduction of crude oil, it has been difficult to buy oil for delivery over a long period. Most of the overage is finding a ready market at posted prices on spot sales. Small bonuses have been reported where a steady supply is guaranteed for a definite period. It is known that some majors are taking more oil than they require to meet day-to-day needs, but they are anxious to maintain an open market for oil produced within curtailment provisions.

Mid-Continent factors are affecting California, although the latter formerly thought itself rather isolated. Gasoline and fuel oil from certain Mid-Continent districts are finding their way to border districts which might be supplied by California under normal conditions. Panama Canal shipments have been affected by Mid-Continent developments, but California has been trying to offset this loss by increased distribution to other sections of the world.

California gasoline quotations have been reduced enough to discourage shipping East Texas gasoline to the West Coast.

Imports Continue at Four-Week Average Level

IMPORTS of crude and refined oils at principal United States ports for the week ended February 11 totaled 1,010,000 barrels, a daily average of 144,286 barrels, as compared with 146,714 barrels daily the previous week and 144,179 barrels daily for the four weeks ended February 11. These figures are from reports of the American Petroleum Institute.

The February 11 week total included 67,000 barrels received at Baltimore, 134,000 barrels at Boston, and 743,000 barrels at New York, and comprised 509,000 barrels of crude oil and 501,000 barrels fuel oil.

Receipts of California oil at Atlantic ports, including crude and refined oils, for the week ended February 11 totaled 160,000 barrels, a daily average of 22,857 barrels, compared with 73,714 barrels daily the previous week and 43,607 barrels daily for the four weeks ended February 11.

The new figure included 40,000 barrels received at Baltimore, 46,000 barrels at Boston, and 74,000 barrels at other Atlantic ports, and it comprised 120,000 barrels of kerosene and 40,000 barrels of fuel oil.

Conservation Association Proposes Proration Rules

Fort Worth, Texas.—In order to adequately support the recently enacted market demand law as a basis of proration and conservation control of oil and gas in Texas, the directors of the Texas Oil & Gas Conservation Association have given their endorsement to a set of principles that they believe should be adhered to by the petroleum industry. The organization sponsored the adoption of the market demand law by Texas after the courts ruled that former laws governing conservation and proration were invalid.

The set of principles advocated would restrict the production of new fields to the utmost permitted by the law in view of the producing capacity of estab-

Crude Runs to Stills, Motor Fuel Stocks, Gas and Fuel Oil Stocks and Cracked Gasoline Production, Week Ended February 11, 1933

(Figures in barrels of 42 gallons each)

DISTRICT	Daily Refining Capacity of Plants			Crude Runs to Stills		MOTOR FUEL STOCKS					Gas and Fuel Oil Stocks	Daily Charging Capacity of Cracking Units			Cracked Production Daily Average
	Potential Rate	Reporting Total	Reporting %	Daily Average	% Operated	(a) At Refineries	(b) Bulk Terminals	(b) In Transit	(c) Other M.F. Stocks	Total Motor Fuel		Potential Rate	Reporting Total	Reporting %	
East Coast	644,700	638,700	99.1	439,000	68.7	5,464,000	7,059,000	1,129,000	444,000	14,096,000	7,495,000	344,400	326,400	94.8	80,000
Appalachian	144,700	135,000	95.0	74,000	54.8	1,358,000	398,000	.....	191,000	1,947,000	898,000	59,100	57,600	97.5	21,000
Ind., Ill., Ky	434,900	424,000	97.5	275,000	64.9	4,524,000	2,766,000	50,000	189,000	7,529,000	3,164,000	341,400	328,200	96.1	70,000
Okla., Kans., Mo	459,300	390,000	84.9	193,000	49.5	3,574,000	699,000	.....	705,000	4,978,000	2,982,000	257,400	238,100	92.5	43,000
Inland Texas	315,300	177,700	56.4	75,000	42.2	1,277,000	55,000	.....	209,000	1,541,000	2,154,000	117,300	95,100	81.1	20,000
Texas Gulf	555,000	542,000	97.7	434,000	80.1	6,040,000	153,000	45,000	219,000	6,457,000	6,674,000	506,500	495,500	97.8	100,000
Louisiana Gulf	146,000	142,000	97.3	83,000	58.5	1,145,000	246,000	.....	30,000	1,421,000	2,271,000	74,400	74,400	100.0	18,000
North La.,—Ark	89,300	79,000	88.5	53,000	67.1	217,000	21,000	.....	54,000	292,000	571,000	29,500	25,500	86.4	10,000
Rocky Mountain	152,000	138,000	90.8	36,000	26.1	1,333,000	.....	.....	29,000	1,362,000	543,000	71,400	68,100	95.4	8,000
California	915,100	866,100	94.6	383,000	44.2	13,064,000	.....	.....	2,355,000	15,419,000	99,064,000	197,700	197,700	100.0	42,000
TOTALS WEEK: February 11, 1933	3,856,300	3,532,500	91.6	2,045,000	57.9	37,996,000	11,397,000	1,224,000	4,425,000	55,042,000	125,816,000	1,999,100	1,906,600	95.4	412,000
February 4, 1933	3,856,300	3,532,500	91.6	2,006,000	56.8	36,996,000	11,404,000	1,487,000	4,400,000	54,287,000	126,202,000	1,999,100	1,906,600	95.4	393,000
Below are set out estimates of Crude Runs to Stills and Motor Fuel Stocks on B. of M. Basis for Week Feb. 11, 1933, compared with certain Feb. 1932 Bureau figures.															
Estimate B. of M. Basis Week February 11, 1933				2,130,000	(d)	38,600,000	13,125,000		4,425,000	56,150,000					440,000
U. S. B. of M , February 1932 Figures:—					2/1	41,501,000	14,528,000		4,160,000	60,189,000					
February 1932 Daily Average Crude Runs				2,201,000	2/29	46,719,000	14,033,000		4,690,000	65,442,000	February 1932 Daily Average Cracked Prod.				469,000

(a)Stocks at refineries, except in California district, which includes stocks of finished gasoline and engine distillate at refineries, at water terminals and at sales distributing stations and any amounts in transit thereto.
(b)By districts, East of California only. In California, bulk terminal and in transit stocks are included under "At Refineries" heading See note (a).
(c)Estimated. Includes motor fuel in pipe lines and unblended natural gasoline at refineries and plants, also blended M. F. at plants.
(d)Estimated to permit comparison with A. P. I. Economics Report which is on Bureau of Mines basis.

lished fields being greatly in excess of consuming requirements. Stripper wells would be the last to come under production restrictions in the interest of conservation and the prevention of waste brought about through premature abandonments, while the flush areas should be limited so as to bring the total production in line with the total market requirements.

It is proposed that production in each state and their respective fields be prorated on a fair basis, with fair and equitable treatment be given each lease in arriving at proration allowables within a given field. The set of principles pronounced withdrawals of crude from storage as being excessive at present, but advocated that some allowance be given storage withdrawals in holding current production to demand, which is determined by the consumption of refined products.

Summarized Review of Week's Field Results

State—	Completions	Oil Wells	Gas Wells	Failures	Initial Prod.
Arkansas	3	0	0	3	0
California	10	8	1	1	3,800
Illinois	0	0	0	0	0
Indiana	3	0	1	2	0
Kansas	11	6	0	5	3,397
Kentucky	6	2	0	4	55
Louisiana	8	3	0	5	2,140
Michigan	4	4	0	0	320
Mississippi	3	1	0	2	100
New Mexico	5	4	0	1	26,664
New York	3	3	0	0	14
Ohio	7	0	3	4	0
Oklahoma	27	14	0	13	3,628
Pennsylvania	16	9	5	2	39
Texas	130	83	6	41	323,680
West Virginia	8	3	5	0	16
Miscellaneous	4	0	1	3	0
Totals	248	140	22	86	363,853

Refinery at El Paso Gets Ward County Crude Supply

El Paso, Texas.—McNutt Oil & Refining Company is operating its recently completed 1000-barrel capacity refinery, located near El Paso, but on New Mexico side of the state border. Crude is supplied by tank car shipments from the Grand Falls field, Ward County, Texas, on a one-year contract held with the Wickett Pipe Line Company, Dallas.

Six-Inch Drive Pipe Is Used in Michigan Gas Test

Mt. Pleasant, Mich.—Six-inch drive pipe has been landed at 400 feet on the Old Dutch Oil & Gas Company's McGuire 1, gas test, Isabella County, Vernon township, Section 35. According to the operators, using six-inch drive will reduce the drilling costs upwards of 40 per cent.

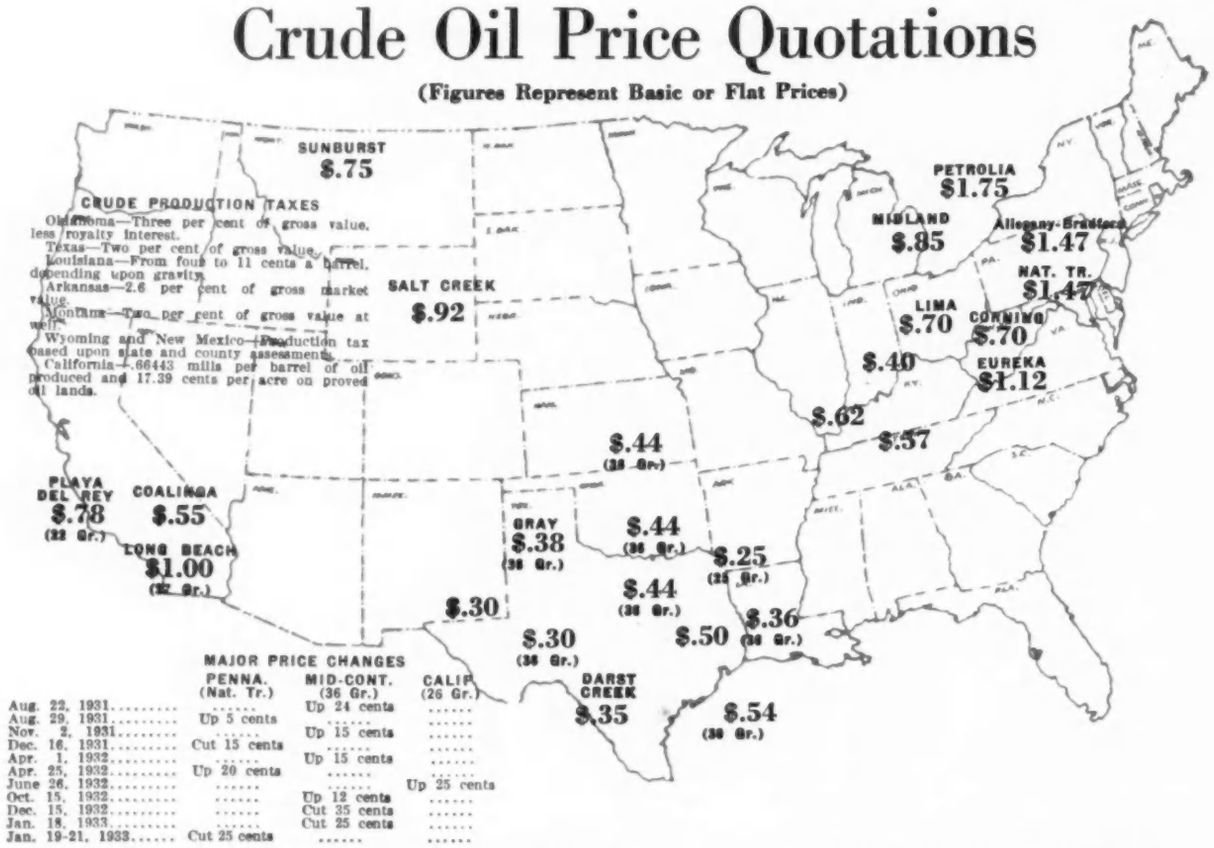
Eight-inch has been customary in the Michigan field for gas wells. Heretofore operators and contractors had held that six-inch pipe could not be driven successfully.

Comparison of Permits Granted For New Wells

State	For week ending Feb. 11	Total this month	Total this year	Total this date last year	1932 year total
Arkansas	0	1	24	1	33
California	5	9	23	29	354
Louisiana	8	18	52	52	451
Kansas	6	13	52	57	463
Michigan	2	10	26	17	183
Oklahoma	18	37	116	90	1,054
Texas	125	327	828	716	7,099
Totals	164	415	1121	945	9,637

Crude Oil Price Quotations

(Figures Represent Basic or Flat Prices)



MAJOR PRICE CHANGES

	PENNA. (Nat. Tr.)	MID-CONT. (36 Gr.)	CALIF. (26 Gr.)
Aug. 22, 1931	.....	Up 24 cents	.....
Aug. 29, 1931	Up 5 cents	.....	.....
Nov. 2, 1931	.....	Up 15 cents	.....
Dec. 16, 1931	Cut 15 cents	.....	.....
Apr. 1, 1932	.....	Up 15 cents	.....
Apr. 25, 1932	Up 20 cents	.....	.....
June 26, 1932	.....	.....	Up 25 cents
Oct. 15, 1932	.....	Up 12 cents	.....
Dec. 15, 1932	.....	Cut 35 cents	.....
Jan. 18, 1933	.....	Cut 25 cents	.....
Jan. 19-21, 1933	Cut 25 cents	.....	.....

Official Postings and Differentials

(Revised to February 17, 1933)

CALIFORNIA: (Effective June 26, 1932.)

Signal Hill, Seal Beach, Alamitos Heights, Huntington Beach, Olinda-Brae Canon, Torrance and Richfield: 14 to 19.9 gravity 65 cents; 20-20.9 gravity 69 cents; 21 gravity 74 cents; 22 gravity 79 cents; 23 gravity 84 cents; 24 gravity 89 cents; 25-25.9 gravity 93 cents; top posting for Torrance and Richfield; 26-26.9 gravity 97 cents, top price for Seal Beach, Alamitos Heights and Huntington Beach; 27-27.9 gravity $1.00; 28-28.9 gravity $1.03, the top price for Olinda-Brae Canon; 29-29.9 gravity $1.06; and 30-30.9 gravity, $1.09, the Signal Hill top posting.

Inglewood: 14 to 19.9 gravity 65 cents; 20-20.9 gravity 71 cents; 21 gravity 77 cents; 22 gravity 82 cents; 23 gravity 87 cents; 24-24.9 gravity 92 cents, the top price.

Playa Del Rey: 14 to 19.9 gravity 65 cents; 20-20.9 gravity 69 cents; 21 gravity 74 cents; 22 gravity 78 cents; 23 gravity 82 cents; 24 gravity 86 cents; 25 gravity 91 cents; 26-26.9 gravity 96 cents, the top price. Field gathering charges of 5 cents a barrel.

Athens, Rosecrans and Dominguez: 24-24.9 gravity 89 cents; 25-25.9 gravity 93 cents; 26 gravity 97 cents; and 27-27.9 gravity $1.00 with three cents additional for each degree gravity upward, ending at 32-32.9 gravity $1.15.

Elwood Terrace: 32-33.9 gravity $1.04 and 6 cents more for each additional degree of gravity, ending with 37-37.9 gravity $1.28, all prices f.o.b. ship.

Whittier and La Habra: 14 to 19.9 gravity 65 cents; 20-20.9 gravity 68 cents; 21 gravity 72 cents; 22 gravity 77 cents; 23 gravity 83 cents; and 24-24.9 gravity 89 cents, the top price.

Montebello: 14 to 20.9 gravity 65 cents; 21-21.9 gravity 67 cents; 22 gravity 70 cents; 23 gravity 73 cents; 24 gravity 76 cents; 25-25.9 gravity 80 cents, the top price.

Coyote Hills: 14 to 20.9 gravity 65 cents; 21-21.9 gravity 66 cents; 22 gravity 70 cents; 23 gravity 76 cents; 24 gravity 81 cents; 25 gravity 86 cents; 26 gravity 90 cents; 27 gravity 94 cents; 28 gravity 98 cents; 29 gravity $1.02; and 30-30.9 gravity $1.05, the top price.

Santa Fe Springs: 24-24.9 gravity 73 cents; 25 gravity 79 cents; 26 gravity 84 cents; 27 gravity 89 cents; and 28-28.9 gravity 94 cents, with 4-cent differential for each degree of gravity upward to 35-35.9 gravity $1.22.

Newhall, McKittrick and Kern River: 14 to 19.9 gravity 55 cents.

Midway-Sunset, Elk Hills and Buena Vista: 14 to 19.9 gravity 55 cents; 20-20.9 gravity 59 cents; 21 gravity 63 cents; 22 gravity 69 cents; 23 gravity 75 cents; 24 gravity 81 cents; 25-25.9 gravity 87 cents and 5-cent differential for each additional degree gravity ending with 30-30.9 gravity $1.12.

Lost Hills: Same as Midway-Sunset up through 25-25.9 gravity 87 cents, then 26-26.9 gravity 91 cents; 27 gravity 94 cents; 28 gravity 99 cents; 29 gravity $1.02; and ending 30-30.9 gravity $1.05.

Coalinga: 14 to 19.9 gravity 55 cents; 20-20.9 gravity 59 cents; 21 gravity 62 cents; 22 gravity 65 cents; 23 gravity 68 cents; 24 gravity 72 cents; and ending 25-25.9 gravity 75 cents.

Wheeler Ridge: 14 to 19.9 gravity 55 cents; 20-20.9 gravity 57 cents; and 21-21.9 gravity 60 cents, with 3 cents more for each additional degree of gravity, ending 25-25.9 gravity 72 cents.

Oklahoma, Kansas, North, North Central and East Central Texas: below 29 gravity 28 cents, 29-29.9 gravity 30 cents, with 2-cent differential to top of 52 cents 40 and above; effective Jan. 18, 1933, by Stanolind, Deep Rock, Champlin, Sinclair Prairie, Continental, Barnsdall, Bell Oil & Gas, Tide Water, Vickers Petroleum, El Dorado Refining, Globe Refining; effective Jan. 19 by Shell, Texas, and White Eagle; effective Jan. 20 by Carter, Gypsy, Gulf, Phillips, and Humble. Same schedule as above, except for carrying gravity scale lower, to bottom price 20 cents for crudes below 25 gravity, made effective Jan. 18 by Skelly and Jan. 20 by Magnolia. Same schedule as above, except for making bottom price of 20 cents apply to all crudes below 28 gravity, made effective Jan. 19 by Empire and Jan. 20 by Pure.

East Texas: Effective by all buyers Jan. 18, 1933, or within few days: 50 cents.

Corsicana, Texas, Heavy: Magnolia, effective Jan. 20, 1933, 30 cents.

Texas Panhandle: The Texas Co., effective Jan. 19, 1933, for Gray County, 36 cents for 34-34.9 gravity, with two-cent differential to 48 cents for 40 gravity and above, and same grades in Carson and Hutchinson Counties range from 31 to 43 cents. Effective Jan. 20, Humble, Gulf, and Magnolia quoted each corresponding grade two cents lower per barrel than Texas. Philtex Oil Co. and Sinclair Prairie, effective Jan. 18, and Danciger Oil & Ref. Co., effective Jan. 28, limited Gray County to top price of 40 cents for 40 gravity and above, while two former companies quoted top price of 30 cents for 40 gravity and above in Carson and Hutchinson Counties.

West Texas and New Mexico: Effective Jan. 19, 1933, by Texas Co., Jan. 20 by Humble, Shell, Magnolia, Gulf and others: 30 cents a barrel. Includes crude from Crane-Upton, Crockett, Ector, Howard-Glasscock, Pecos, and Winkler Counties, Texas, and Lea County, N. Mex.

Gulf Coast:

Salt Dome Region: The Texas Co., effective Jan. 19, 1933, below 22 gravity 55 cents with one-cent differential to 74 cents for 40 gravity and above. Humble, Gulf, Sun, and Atlantic, effective Jan. 20, 1933, below 20 gravity 32 cents, 20-20.9 gravity 34 cents, with two-cent differential to top price 62 cents for 34 gravity and above.

Cameron Meadows, Louisiana, Magnolia, effective Jan. 20, 1933, below 20 gravity 22 cents, 20-20.9 gravity 24 cents, with two-cent differential, ending with 34 gravity and above 52 cents; Lockport and Iowa, Louisiana, regular salt dome field schedule of Humble and others.

Conroe, Texas: The Texas Co., effective Jan. 19, 1933, 69 cents for 35-35.9 gravity, with one-cent differential upward to 74 cents for 40 gravity and above. For same grades Humble, effective Jan. 20, quoted range of 54 to 64 cents using two-cent differential; while Tide Water posted a range of 59 to 64 cents, using a one-cent differential.

South Texas:

Darst Creek: The Texas Co., effective Jan. 19, 1933, and Magnolia, effective Jan. 20, 35 cents; Humble effective Jan. 20, posted 40-cent price. **Luling:** Magnolia, effective Jan. 20, 30 cents. **Salt Flat:** effective Jan. 20, 1933, Humble and Shell 40 cents. **Lytton Springs:** Magnolia, Jan. 20, 45 cents. **Mirando:** Humble and Magnolia, Jan. 20, 35 cents. **Pettus:** Humble, Jan. 20, 55 cents. **Refugio Heavy:** Humble and Atlantic, effective Jan. 20, 1933, 45 cents. **Refugio Light:** same as Humble's schedule for Gulf Coast salt dome region.

North Louisiana and Arkansas:

Caddo, Homer, Haynesville, Bull Bayou, Sabine, Crichton, DeSoto-Red River, Cotton Valley, Sarepta, Carterville, Pine Island, El Dorado, Rainbow Light: The Texas Co., effective Jan. 19, 1933, and Gulf and Louisiana Oil Ref. Co., effective Jan. 20: below 29 gravity 28 cents, 29-29.9 gravity 30 cents, with 2-cent differential to 52 cents for 40 gravity and above. Standard: Caddo below 29 gravity 20 cents, with 2-cent differential to 44 cents for 40 and above; Homer below 29 gravity 28 cents to 52 cents for 40 and higher; Haynesville below 29 gravity 19 cents and 2-cent differential to 43 cents for 40 gravity and above; Sabine, DeSoto and El Dorado below 29 gravity 25 cents with 2-cent differential to 49 cents for 40 gravity and above; Sarepta-Cartersville below 29 gravity 17 cents and 2-cent differential to 41 cents for 40 gravity and above. Magnolia, effective Jan. 20, 1933, below 29 gravity 20 cents, 25-25.9 gravity 22 cents, with 2-cent differential to 44 cents for 40 gravity and above, except El Dorado (East), posted at 20 cents flat price.

Smackover:

The Texas Co., effective Jan. 19, 1933, and Gulf, effective next day: 30 cents; Standard of La. and Magnolia, effective Jan. 20, 20 cents; Louisiana Oil Ref. Co., effective Jan. 20, 25 cents.

Rocky Mountain States: (Effective December 16, 1932).

Salt Creek: Below 29 gravity 76 cents; 29-29.9 gravity 78 cents with differential of 2 cents each degree to 40 and above. Top price $1.00.

Elk Basin and **Grass Creek:** 87 cents; **Big Muddy:** effective Jan. 24, 1933, 90 cents; **Lance Creek:** 92 cents; **Rock Creek:** effective Jan. 24, 1933, 46 cents; **Sunburst:** effective November 7, 1932: 75 cents; **Osage:** 98 cents; **Cat Creek:** $1.20; **Pondera:** 90 cents; **Hogback, New Mexico:** 80 cents.

Mid-Western States: (Effective Jan. 18, 1933).

Lima: 70 cents. **Indiana:** 40 cents; **Illinois:** 62 cents; **Princeton:** 62 cents; **Wooster:** 70 cents; **Western Kentucky:** 57 cents.

Pennsylvania: (Effective Jan. 21, 1933).

Bradford District: $1.47; **National Transit Oil:** $1.47; **Southwest Pennsylvania Pipe Line Oil:** $1.17; **Eureka Pipe Line Oil:** $1.12; **Buckeye Pipe Line Oil:** 97 cents; **Corning Crude:** 70 cents.

Michigan: (Effective July 13, 1932), **Midland:** 85 cents a barrel. **Muskegon:** 76 cents to $1.00 a barrel.

Canada: (Effective Jan. 18, 1933), **Petrolia:** $1.75; **Oil Springs:** $1.82.

Commission Insists Texas Hearing Be Open; More Hearsay Than Facts

(Continued from page 9)

"Has it ever occurred to you," Long inquired of Chastain, "that the people of Texas are tired of state employes using their vacations to electioneer for the officials employing them?"

"Has it ever occurred to you," roared back Chastain, "that the people of Texas are getting tired of you and your investigations?"

Long did not reply, but indicated that he had not heard this. This 27 year old member was admitted to the bar during the past year.

Turlington, a law student, is 26 years old.

Latham, who lists himself as a lawyer-teacher, is 25. He also carries a large brief case.

Ultimately the committee continued without altering its line of questioning, as there was not a quorum present at this time to vote on the question.

W. S. Woolley stated that during the time he was an investigator for the committee he was advised by Mr. Byrd of Ortiz Oil Company that this company intended to violate proration orders on their lease which offset the Beacon, as their neighbors were overproducing and they had no alternative.

Wooley stated that he immediately investigated and found that the overproduction was taking place. He reported this to the commission and an injunction was subsequently obtained.

At the next meeting of the committee, John Boyles, attorney for the commission, read a statement in which he said that:

"I understand from discussions had at the hearing of your committee on Saturday that you now have under consideration the question of whether or not further hearings in the investigation of enforcement of the conservation laws of Texas will be conducted in executive session.

"The public hearings held by the committee during last week indicated a purpose on the part of some members of the committee to reflect on members of the railroad commission through inuendo, insinuation and testimony concerning rumors and gossip, and while I am convinced that the people of Texas will not pass judgment on the commission on gossip, I must insist, in justice to the commission and fairness to the people of Texas, that the investigation be conducted in public hearing only, to the end that the people may be informed through competent evidence that the commission has done everything in its power to enforce the conservation laws."

Chastain heartily approved this statement, and this precipitated another argument. He moved that they go into executive session or adopt the rules of evidence applicable to the district courts of Texas.

Representative P. L. Anderson of San Antonio, declared that the committee had no right, either under the constitution or the rules of the House, to go into executive session. He pointed out that they were here representing the people of Texas, and that they could exclude no one.

Finally, upon motion of Representative Weaver Moore of Houston, district court rules of evidence were adopted.

Myron T. Blalock, Marshall attorney representing the Independent Petroleum Association of Texas, told the committee that although they were not sitting as a court, actually they were trying public officials before the bar of public opinion, and that they should be dealt with fairly. He pointed out that the people looked to the Legislature to protect the public and prevent injustice, rather than to foster it.

The first witness to testify following the adoption of the new rules, was A. B. Capers, formerly in charge of the administration of proration in East Texas for the commission, but now in the employ of David Donoghue, Receiver.

Capers produced an affidavit from K. B. Knox, investigator for the commission, to the effect that Burkett had solicited him for money from his salary to create a fund to be used by the commission for political purposes.

The witness also testified that Burkett recommended the discharge of certain employes in Capers' department. He contended that the men whom he, Capers, had employed were efficient and experienced oil men, and insinuated that the other employes were worthless.

Oklahoma Committee Gets More Testimony on "Hot" Oil Deals

Oklahoma City.—High point of the Oklahoma Senate's investigation of administration of the proration laws came when Ray C. Walker, previously mentioned as a member of the firm of Parker and Walker, was brought before the committee. He had been missing for some time, during which time all records of his firm had been inspected by the committee. Walker was confronted with a transcript of a dictaphone record of a conversation said to have taken place in a hotel room in which he had gathered with Mark Kleeden and Robert Galbreath, Jr., the reported conversation having had to do with the running of oil from Oklahoma City in violation of proration regulations, and payment for "protection" for such movement.

One of the first witnesses to appear before the committee after introduction of the dictaphone transcript was Mark Kleeden of McArthur Oil Company and Petroleum Pipe Line Company. Kleeden told of his dealings with the Parker-Walker firm and admitted that he had cooperated with U. S. Attorney Hyde in securing the dictaphone testimony.

Senator McDonald asked: "You never approached Colonel Murray to secure protection?"

"No, sir."

"But you understood that Walker was procuring protection for you?"

"Yes, sir, I understood so."

"Then, you have only Walker's word that he paid Cicero?"

"No, sir, he told me he performed through Cicero. We were running the oil and there wasn't any doubt about it in our minds."

"Doubts about what?"

"That we were securing protection."

Kleeden then said that he had run about 180,000 barrels under the arrangement for protection.

Questioned as to whether he had ever been molested by milita men, Kleeden stated: "Yes, three times before and once afterwards." Referring to the deal for protection.

"What took place?"

"The soldiers and some Slick workers spent two days digging around our well. I knew they would find nothing in the way of hidden connections because we ran our oil openly through the tanks."

"What did you then do?"

"After two days of this I got tired of seeing them around and telephoned Parker and told him to get these fel-

lows off or I'll scream to high heaven."

"Did the soldiers and oil workers leave?"

"Right away, that afternoon."

"Were you bothered again?"

"No."

Robert Galbreath, Jr., represented in previous testimony as being the purchaser of "hot oil" from the McArthur wells, said that approximately 180,000 barrels had been run and $18,000 paid for "protection," at the rate of 10 cents per barrel.

S. M. Stauffer, president of Stauffer Petroleum Company told the committee how Frank Clark, head of Clark Pipe Line Company, propositioned him to "run some oil from your wells and I'll fix it with Colonel Cicero Murray." He also told of a visit of Ed M. Semans and C. J. Haggerling, at which time he was again approached with an offer for protection in running "hot oil." Semans is a former Democratic State Chairman in Oklahoma. Stauffer said he made a deal with Clark and that 4800 barrels were run from three of his tanks although he reported only 342 barrels as Clark had told him to do. Stauffer then stated that he refused to have any further dealings with Clark although Clark wanted him to run as much as 50,000 barrels. After this refusal he said the soldiers "came out and made life miserable for me."

It now appears that the Federal Government will participate actively in an investigation of Oklahoma oil affairs. Whether it will join hands with the state or work separately is not yet known. The investigating committee already has gone far enough into the investigation to learn what conditions in the Oklahoma City pool have been during the past two years, and it is doubtful that any action on the part of administration forces will be able to forestall a wholesale disclosure.

Decision Upholds Proration in Oklahoma, Criticizes Methods

Oklahoma City.—The Oklahoma Supreme Court in a decision handed down late Wednesday, February 15, upheld the validity of proration but censored the method in which it has been administered by the Oklahoma Corporation Commission. The decision is the result of an application for clarification of the court's opinion rendered in December of 1932, in regard to shutting down all wells belonging to Wilcox Oil & Gas Company. In writing the controverted decision, Justice Andrews said: "The corporation commission has no authority to make an order shutting in an oil well because the operator of that well has transported or sold oil in an amount larger than the amount allowed to be produced from the well under the allowable fixed by the commission. If the well is to be shut in it must be after proof that the production from the well was in excess of the proportionate amount of oil produced from the common source of supply. The commission should not deprive a property owner of the control of his property by the making or enforcing of an order which its attorneys are compelled to confess to be erroneous.

"When it attempts to apply those rules in order to prevent waste or to regulate production it acts in a capacity quasi-judicial. When so acting it must either act under the rules of procedure and evidence provided by the legislature or under rules of procedure and evidence provided by itself and it may not then act without evidence or upon incompetent, irrelevant or immaterial evidence."

The strict appliance of the provision that proration must be on the well basis and that no well or group of wells may be shut down because of illegal production from another well or group of wells belonging to the same owner will mean the court has removed one of the principal weapons which proration authorities have used in dealing with many of the irregularities in the Oklahoma City pool. It now appears evident that successful enforcement of proration rules and regulations may not be expected without drastic revisions in the Oklahoma Conservation Act of 1915.

The Murray administration oil conservation bill which the governor has been threatening for weeks to put in the hopper has been written and copies were being distributed by Colonel Cicero Irwin Murray, cousin of the governor. The bill is designed to "put teeth" into the law and to create a permanent staff of field prorationists. Among these would be a state umpire and an assistant proration umpire, and a proration attorney. It would further authorize the proration umpire to hire not to exceed 30 deputies. All members of the proration organization would be either appointed or approved by the governor.

It is understood that Colonel Cicero Murray is likely to be state proration umpire in the event the bill is passed.

Mid-Continent Section Talks Economies at Wichita Meet

Wichita, Kansas, Feb. 17.—Reduction of Taxes, lowered production and operating costs and methods of increasing recovery of oil were the main topics of discussion in the Mid-Continent District Division of Production of the American Petroleum Institute meeting held here Friday and Saturday, February 17 and 18.

Meeting for the first time in Kansas, members from outside states were impressed with the improved attitude brought about through recent increases in the demand for Kansas oils.

With slight revisions due to inability of speakers to be present, the program went through as scheduled. One of the most interesting papers presented during the session was that of James O. Lewis and Harry F. Wright, who spoke on "Proration as Based on Bottom-Hole Pressures and Acreage Most Equitable and Practical." This paper was substituted shortly before the meeting when it was learned that Doctor A. F. Melcher could not be present to discuss progress in methods of increasing oil production.

That the people of Wichita know how to entertain an oil crowd was demonstrated on Friday evening when more than 200 members and guests attended the banquet and entertainment.

The meeting goes on record as one of the most successful in several years. The Wichita group was organized in April, 1932, and has grown to a membership in excess of 350, most of whom are actively participating in the programs each month.

Nominating committee of the Mid-Continent division announced the following slate of officers to be voted on the last day of the meeting, R. R. Hawkins, The Texas Company, Tulsa, chairman; H. L. McCuiston, Phillips Petroleum Company, Wichita, J. E. Warren, Continental Oil Company, Borger, Texas, and B. O. Hindman, Indian Territory Illuminating Oil Company, Seminole, vice chairman, and F. W. Floyd, Carter Oil Company, Tulsa, secretary-treasurer.

Replacing North Texas-Oklahoma Refinery Line

Wichita Falls, Texas.—Bell Oil & Gas Company, Tulsa, purchaser of crude in Northern Wichita County and in the Red River bed, is building an eight mile six-inch welded line from Bridgetown station, Burkburnett field, to its refinery at Grandfield, Oklahoma. This line will replace a combination three and four-inch line that is to be abandoned, and will enable the company to fulfill plans of increasing its crude purchases.

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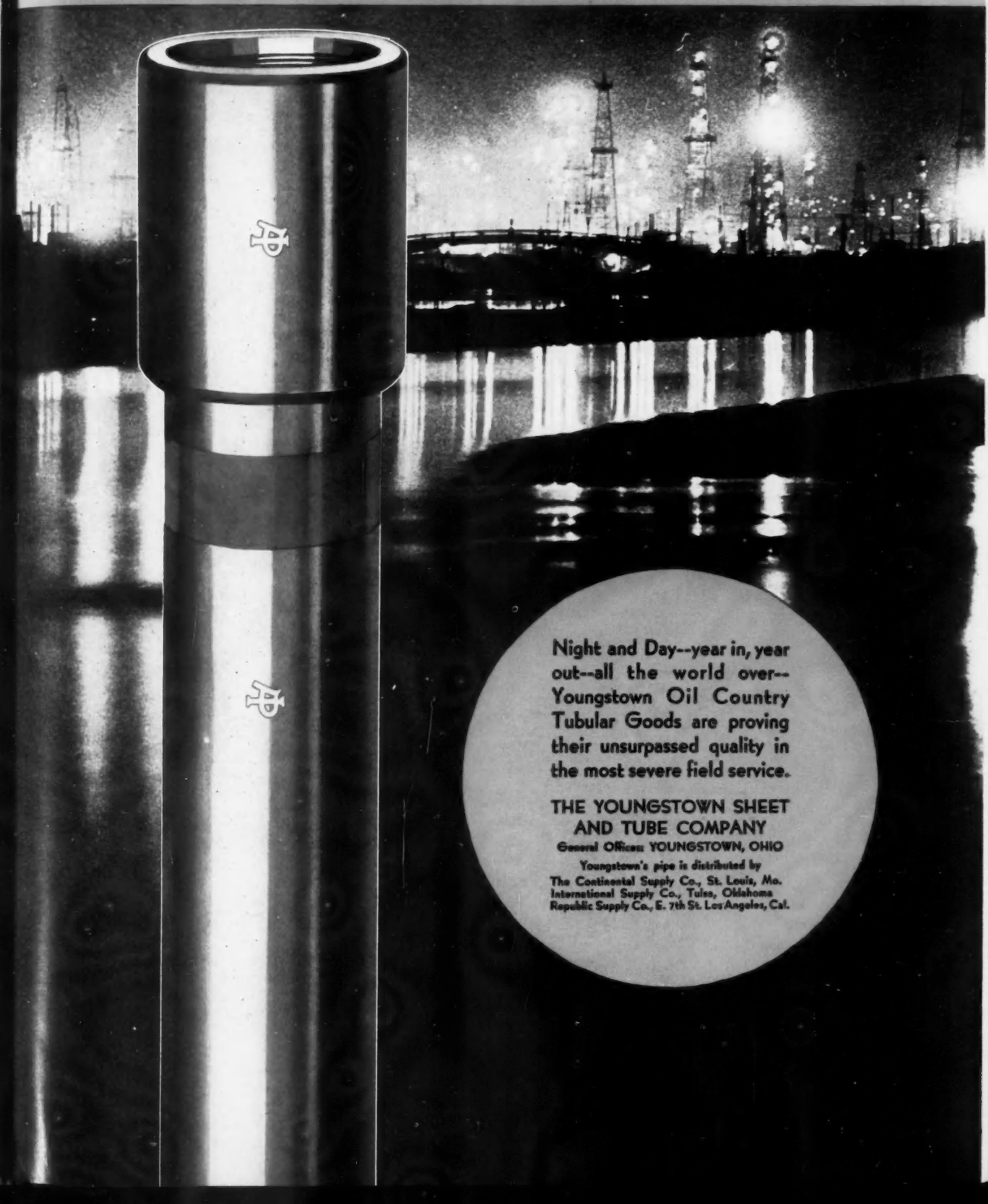

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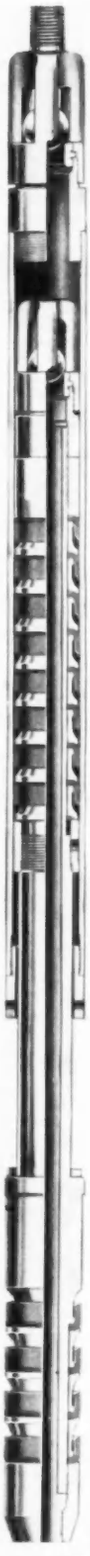

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One-piece inside tube and hold-down eliminate a number of parts and connections.

Hold-down cups are oversize enabling the operator to seat the pump in practically any type of barrel installed in the well without any extra expense or necessity of pulling tubing. For new installations a special seating nipple can be installed on the bottom of the tubing.

Emsco—D+B "Inverto" pull-out pumps have been designed to meet the demand of the times for a pump that is economcal both in initial cost and in upkeep. The "Inverto" Pump is a simplified cup plunger pump of the inverted type, a self-contained unit, installed and removed with the rods.
Actual test records disclose not only materially increased production after installation, but also show longer runs and lower maintenance cost.

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MEN IN THE INDUSTRY'S NEWS

CHAPIN K. MORRIS, son of George B. Morris, president of Bradford Motor Works, is representing the company as a field salesman in the Oklahoma and Kansas territories. He is headquartered in Tulsa.

A. J. AHLUM, Secretary of Crystal Oil Refining Corporation, after an extended business trip to Washington, Philadelphia and New York City, has returned to Shreveport. La.

BURKS WHITE, independent operator and official in the Producers Pipe Line Company, was made vice president and a member of the board of directors of the Old Dutch Oil & Gas Company, Mt. Pleasant, Michigan, at a meeting of the company's directors recently.

G. W. AKERS, production man with Burmah Oil Company in Upper Burmah, is spending his vacation in Southern California.

HAROLD HOOTS, geologist for Union Oil Company at Los Angeles, is doing special work for his company along the Texas Gulf Coast.

N. C. DONOVAN, tool pusher with Burmah Oil Company in Upper Burmah, is now in Long Beach, California. He will return to Indian via the Chichicu Maru, of the N. Y. K. line, early in March.

M. H. SOYSTER, consulting geologist of Los Angeles, is now doing special work in Glenn County, California, for Tehama Oil & Gas Company.

J. PAUL GETTY, president of George F. Getty, Inc., of Los Angeles, has returned to California after an extended American and European tour.

W. S. ACKERMAN, assistant to the manager of transportation for Associated Oil Company at San Francisco, has been appointed a member of the 1933 sub-committee of statisticians and economists of the American Petroleum Institute.

R. R. CRANDALL, consulting geologist of Los Angeles, left California February 14 for an inspection trip in Texas fields.

J. A. BROWN, C. F. Jones, L. P. St. Clair, Ralph B. Lloyd and Ed. Higgins, who comprise the executive committee of the California Oil and Gas Association, are working on plans for the annual banquet, to be held around the middle of March.

J. R. MAHAN, an engineer formerly attached to the general offices of The National Supply Company at Toledo, Ohio, has been transferred to district office of the company at Fort Worth, Texas.

J. R. PARTEN, president of Texas Independent Oil Mens Association, was re-elected president and general manager of Woodley Petroleum Company, at the annual meeting of the company's stockholders at Shreveport, recently.

Other officers re-elected were: R. H. Deas and Myron G. Blalock, vice-presidents; J. R. Pope, secretary-treasurer; J. B. Cook, assistant secretary and E. G. Palmer, Shreveport, chairman of the board. Members of the board of directors: E. G. Palmer and J. H. Parten, Shreveport; R. H. Deas, Jackson, Miss.; J. R. Pope, G. John Kooiker, Holland, Mich.; H. W. Davenport, Minden, La.; Eugene Harding, W. T. Moran, Houston; E. M. Funkhouser, Houston, and Myron G. Blalock, Marshall, Texas.

DON C. DAVIS, Emsco Derrick & Equipment Company, is now located at Midland, Texas. covering sales in West, North and Panhandle Texas territories.

W. H. (Bill) DWYER, former manager sales and construction for the Kirk-Mrorow Iron Works Company, has resigned to accept a similar position with the United Construction Company, which will have general offices in the Kirby building, Dallas, Texas. The latter concern was organized recently to engage in the sales and erection of all types of steel storage tanks.

D. G. HAWTHORN, production engineer for Barnsdall Oil Company, was married on February 14 to Miss Lois E. Burton. The ceremony took place at the home of the bride's parents in Tulsa. Mr. Hawthorn, who has taken an active part in the affairs of the various technical societies, is a graduate of Colorado University, receiving a B.S. degree in mechanical engineering in 1924 and an M.E. degree in 1928.

L. D. WYANT, Alco Products, Incorporated, has recently returned from a seven months' stay in Russia where he has been supervising operation of refining equipment furnished by his company. Wyant does not hesitate to state that he is mighty glad to be back despite the so-called terrible conditions prevailing in this country.

C. J. ANDERSON, sales representative for A. Leschen and Sons Rope Company, was killed in an automobile accident on February 15, when his car ran off a bridge 14 miles east of Edmond on the Edmond-Tulsa highway. Anderson was foreign representative of Oil Well Supply Company for more than 10 years and had joined A. Leschen and Sons Rope Company about 18 months ago, acting as wire line and rope salesman.

WALLACE H. COLLINS, formerly chief production engineer in the Tulsa Division of Shell Petroleum Corporation, has been made superintendent of production, succeeding the late S. R. Gilland, who died recently. Collins returned just a few months ago from an extended tour of duty at The Hague.

W. S. FARISH, chairman of the board of Humble Oil & Refining Company, has returned to Houston after a pleasure trip to Florida which kept him away from headquarters for a few weeks.

CLINT MURCHISON, Dallas, independent producer, transporter and marketer of crude, was in Houston on business during the week.

RUSSELL C. CONKLING, chief geologist for Shell Petroleum Corporation in West Texas and New Mexico districts, has been transferred to Southern division offices at Houston.

JACK PEW, Sun Oil Company, has returned to Dallas from a business trip to Houston.

Receivers to Sell Cosden Oil Company Properties

Fort Worth, Texas.—Public sale of properties of Cosden Oil Company, which has been in receivership since November 10, 1930, has been authorized to be held March 28 at Big Spring, Texas, by federal court as a preliminary move toward reorganization. J. S. Cosden, New York City, former head of the company, is actively identified with the movement, and will likely resume charge after the sale is held. Geo. N. Moore and Henry Zweifel, Fort Worth, are ancillory receivers of the company, which is producing about 1600 barrels of oil daily under rigid proration restrictions, with an open flow potential rated above 7000 barrels daily. The company has a complete refining unit at Big Spring. General offices are at Fort Worth.

Interest in San Joaquin Leases Continues High

Coalinga, Calif.—Despite failure of Graham-Loftus Oil Corporation to get a water shutoff with 9⅝-inch casing at 2780 feet in No. 1, a wildcat near Raisin City and in the bed of the San Joaquin valley, interest in development of large leases in the district is still running high. The well was drilled to 3560 feet, and cores taken from below 3000 feet carried enough gas to warrant a production test. The cementing point was in doubt, but an effort was made to shut off all questionable streaks. The 9⅝-inch casing has been recemented.

Several large operators have leases in the valley between Coalinga and Fresno, but drilling has been postponed for various reasons. Two or three companies have done extensive geophysical work near Raisin City, and one company drilled a series of core holes. The area is so vast that efforts to eliminate sections have been made for several years. The surface fill is so uniform that some type of subsurface work will be required to locate possible structures. Oil and gas fields in the bed of the valley are entirely possible, the experience in the Fruitvale, Weed Patch, Lost Hills and Buttonwillow fields having proved the wisdom of drilling on the level stretches.

Sutter County Test May Mark New Shallow Gas Field

San Francisco.—A heavy gas pressure has been developed in Buttes Oil Company's No. 1, Section 35-16-1, a wildcat in Sutter County, and a shallow gas field may result from efforts to extend California's center of production toward the north. The well was drilled to 2730 feet, and a string of 8¼-inch casing landed on bottom. The string was cemented through perforations at 2100 feet. A pressure of 1400 pounds built up in the casing, and a large torch was made from a part of the gas flow. Cores carried enough gas to burn and bore a strong gasoline odor. The discovery is considered important, but it is too early to predict a steady gas flow from a new well. Possibility of a gas pocket is enough to encourage caution.

Spudding Fee Halts Shallow Drilling in Mesa Field

Santa Barbara, Calif.—Drilling of several shallow wells in the Mesa field is being considered, but the high spudding fee asked by the city of Santa Barbara has checked drilling operations. The Mesa field was discovered in 1929, but never proved a factor in heavy oil circles. The discovery well was the best of the lot, but even it soon went to water. Present conditions favor drilling in shallow districts where the operator has a fair chance to complete commercial wells at small cost. Major companies pay no attention to the field, but several small companies have been trying to obtain a settled production from a few wells. Three or four wells will be started when city laws are amended to reduce filing and spudding fees. Mesa oil is a low gravity crude, but it makes an excellent road oil, and has been marketed in several districts. A pipe line was to have been built from the field to tidewater near Goleta, but no action was taken on its construction. The field is badly faulted, and two or three companies have been drilling inside the major fault line with the hope that a better accumulation will be found. The wells are completed around 2200 feet, and are being drilled at low cost. The field will never be a decided factor, but production could be increased by careful drilling.

North Belridge Deep Test Shows Favorable Indication

Taft, Calif.—A very deep extension of the North Belridge field will be made by Ohio Oil Company if the oil sand cored below 8419 feet makes the showing expected of it on a production test. The first oil sand was found after drilling through a zone which showed few cuts. From 8440 to 8460 feet, the sand showed a good cut and odor. The sand below 8460 feet was slightly coarser and showed oil and gas. Between 8475 feet and 8490 feet, the sand was uniform and showed good cuts. Alternating shale layers were cored before encountering the oil sand.

The sand found at 8419 feet in Bloemer 1 apparently corresponds to a similar body found nearly 1000 feet shallower in Belridge Oil Company's recent discovery well which was drilled to 8000 feet and completed as a good oil and gas well. Picking up of an oil zone gives the field a wider appearance in the very deep zone than in the upper Temblor formation. The original producing formation was found only along a very narrow strip. The Temblor zone was productive along a very limited trend.

Huntington Beach Activity Slowing Down Perceptibly

Huntington Beach, Calif.—Agitation for increased drilling at Huntington Beach has cooled down considerably, but a few operators are considering drilling and deepening a number of wells to the deepest producing zone around 4400 feet. Reports that it should be possible to drill slanting holes to tap an undeveloped area under the Pacific Ocean have been circulated rather carelessly, and it is doubted whether it is practical to attempt to drill a "flat" hole sharply away from the vertical.

Less drilling is actually taking place at Huntington Beach than reports would indicate. Two or three wells have been completed, but only one outstanding producer has been finished. Lease requirements call for drilling on many small tracts when a new development threatens drainage. Recent drilling has not featured a new and deeper zone, but a few offsets may be required where old wells have been producing from one of the shallower zones.

Several Kettleman Wells During Next Few Months

Coalinga, Calif.—Kettleman Hills is the second major California field that has not been intensely developed immediately upon discovery. Such a program has helped to maintain order in the field and in other fields and has enabled the curtailment program to function. Kettleman Hills has a rated potential of 267,000 barrels, and regardless of whether it could make so much oil, it certainly could produce much more than the present output.

Kettleman North Dome Association and Standard Oil Company of California have worked together to develop the field in a very conservative manner. Associated Oil Comapny, Superior Oil Company, Petroleum Securities Company, Union Oil Company and Shell Oil Company have also cooperated. Standard Oil Company controls fully half of the field, and has curtailed to requirements without a written agreement.

Several wells should be completed during the next few months. Drilling has been largely confined to necessary offsets and to sections near the edge of the structure. The outside producing line is running close to the tentative marker established two years ago. Production has extended farther toward the northwest than expected, but the sides of the North Dome are running true to form.

Possibility of production below the Temblor makes the field an interesting testing ground. The main producing formation is itself so deep that it was discovered only after a 25-year searching period. A deeper producing zone is possible.

North Kettleman Oil & Gas Company's Lillis-Welsh 1, an outpost test northwest of the field is standing at 9933 feet. If the production test under way fails, this well will be drilled to 11,000 feet or deeper. The water shutoff with the seven-inch casing at 9640 feet has been approved.

Superior Oil Company spudded Huffman 6, January 22, and passed a depth of 6500 feet on February 10. Such a speed was not considered possible in this field three years ago. Standard Oil Company spudded No. 8-21J January 22 and passed a depth of 6035 feet on February 10.

Long Beach Completions No Encouragement for Rush

Long Beach, Calif.—Several small completions last week did not extend the producing limits of the 5000-foot zone, and the average initial production of the group was not high enough to excite companies now attempting to complete wells at the favorite level. A 200-barrel well is considered a good completion, and a 400-barrel well is quite a prize. Several wells have been free from water, but the cut has been high in a few completions. Cost of drilling to 5000 feet has averaged much less than would be expected at such a depth. Labor and material are being obtained at low prices, while leases have changed hands at surprisingly low figures. Most of the inside leases are still being held at high prices, but edge tracts which show water may be purchased at a more reasonable figure. Old wells that have ceased to be profitable at shallow depths may be purchased in some parts of the field with the recommendation that deeper drilling will prove profitable.

Old Newhall Area Has Gas Blow-Out; Well Flows Wild

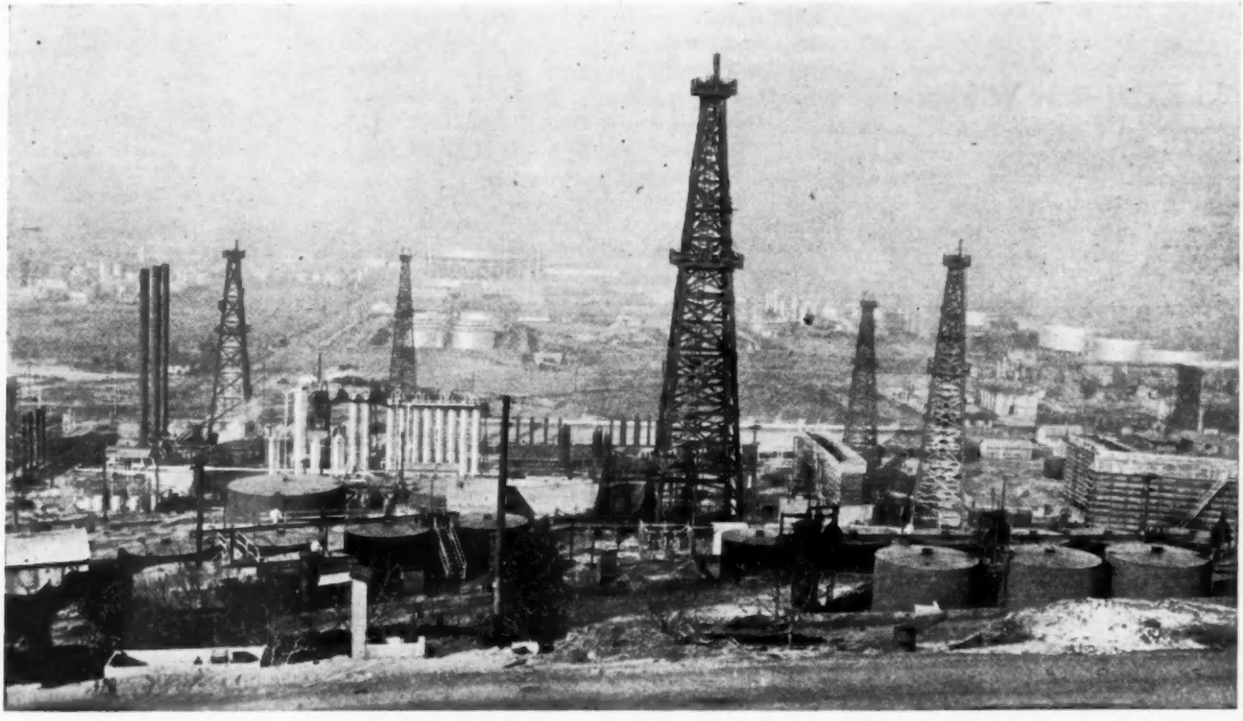
Los Angeles.—The unexpected blowout in Willetts Petroleum Company's No. 1, a wildcat several miles north of the old Newhall field, gives some support to the theory that a commercial oil or gas field may be developed in a district that has been ignored by major operators for several years. Circulation was lost at 1900 feet while taking a core. Raising the drill pipe a short distance started the well flowing gas at a 15,000,000 cubic foot rate. The gas flow was accompanied by a 5000-barrel flow of slightly salty water and a trace of oil. Such a flow of gas is not being taken lightly by major companies, and a structure of some importance may be found. The well is flowing wild, and has only a section of conductor pipe in the hole. The location is on Section 35-5n-16w.

Oil has been produced in the Newhall district since 1875, but the area has never been considered a flush producer. Production has been from shallow sands, and the heavy oil exactly met the requirements of 30 and 40 years ago. Interest in the field has been negligible for years. The oil makes good kerosene, fuel oil and road oil, but contains little gasoline.

Willetts Petroleum Company's No. 1, the wildcat which blew out, is several miles north of the original development.

Montebello Field Test Will Try for Miocene Production

Los Angeles.—An attempt to develop oil in the Miocene will be made in the Montebello field by Universal Consolidated Oil Company, a location having been made for a deep test in the extreme northeast part of the field. All production has come from the Pliocene, but the top of the Miocene should be found slightly below the deepest production of the past. Top of the Montebello structure lies considerably east of the center of the surface boundary line of production. Filling in of these deeper contour lines is a possibility on edge leases, where deeper zones are involved. Several wells have been drilled in efforts to extend the field in all directions, but the maximum producing limits of the upper zones have been well established. The Montebello field has been a fairly consistent producer, but water has caused some trouble. During the early development of the field, faulty shutoffs were not uncommon, and penetration of zones which were not to be produced was often accomplished without use of casing strings. No drilling has been done for several years.



View from Signal Hill, Long Beach, California, with a "Santa Ana" blowing. When the hot winds come from the east, as they occasionally do in the Los Angeles Basin of Southern California, their dirivation is usually the Mojave Desert. An oil man from Texas once stated that he could see no reason why the Californians should call a sand storm a "Santa Ana." Neither are we familiar with the legend, but the Santa Ana is most unwelcome in this area. A "hottish" wind, charged with static electricity, finds its way through the few mountain passes from the desert to the east of the basin, and blows out to sea. Likely, for three days, man, beast, flora and fauna, hope it will stop—for the eastern exposures are parched, leaves turn brown and drop, fruit loses its grip and falls to the ground, and man needs lots of water and lotions. The men in the canyon and foot hills fields get them first and worst, but the shore line fields workers are just as glad to see the wind again come back from the sea and drive the Santa Ana back to its desert.

Test of Coal Oil Point to Drill Nearer to Shore

Santa Barbara, Calif.—Bolsa Chica Oil Corporation has made a new location on its ocean permit off Coal Oil Point, and will drill about 400 feet nearer shore on the theory that the first well was off structure. The location is a short distance down the coast from the Elwood field. The structure lies entirely under the ocean, and is apparently on a line beyond the Elwood-Goleta trend.

The original well was drilled to 4191 feet and plugged back to 4150 feet for a test of the Vaqueros formation. The well flowed water and oil, but was never a commercial producer. The test was drilled to 5510 feet and failed in the Sespe formation. The hole was plugged back to around 500 feet and redrilled to test the Vaqueros again just below 4000 feet. At 4089 feet a poorer showing was made than during the original test. The second hole was only a short distance from the original test, and it is believed that the poor water shutoff in the first hole affected the action of the redrilled job.

A high pressure and the fact that the first well actually made some 38 gravity oil are good arguments in favor of further drilling. The geology was worked out with the aid of divers and row boats, and was under the direction of J. E. Eaton.

Field Extension Wildcats Interest in California

Los Angeles.—Deep extension wildcats near proven fields are attracting as much attention in California as the more remote tests. In the North Belridge and Lost Hills fields deep tests are under way which may change the boundaries established by shallower producing zones.

Another well will be drilled at Coal Oil Point, and tideland activity is expected to take on new life in other sections where validation may be necessary.

The Calabasas district near Los Angeles will be drilled again, two locations having been made for immediate drilling.

Abandonment of a wildcat test on Santa Rosa Island was announced.

Interest in wildcatting is still low, due to an overproduction of both light and heavy oil. Southern California has only a small number of active tests, but Ventura County operations are holding up well. Kern County also has a smaller number of active wildcats than the average of the past few years.

At Bena, in Kern County, E. A. Bender's Tejon 1, Section 19-30-30, is awaiting completion of a rig at the new location.

In the Devil's Den district, A. S. Halladay's Lincoln 1, Section 11-25-18, is drilling in brown shale at 1705 feet. Pyramid Hills Oil Company's Gauthier 1, Section 24-25-18, is drilling in a hard shale at 2972 feet.

Near El Tejon, Descanso Oil Company is preparing to resume operations in Tejon 1, Section 31-11-9, a wildcat which has been idle for some time at 2750 feet.

Near the Lost Hills field, Associated Oil Company's Williamson 1, Section 2-26-20, is drilling out cement at 1994 feet after cementing a string of 22-inch casing.

In the McKittrick district, Federal Oilfields' Cymric 3, Section 27-29-21, is cleaning out and circulating at 300 feet. T. H. Purman's No. 1, Section 22-29-21, is standing cemented at 5385 feet after reporting oil and gas showings.

Near Semitropic, Milburn and Sherman's No. 1, Section 29-25-21, is building rig for a test in the bed of the San Joaquin valley.

At Weed Patch, Mohawk Petroleum Company's Hood 1, Section 30-30-29, is rigging rotary for a test near a field which produced some oil in 1930.

Santa Barbara County

In the Cuyama Valley, Cuyama Valley Oil Corporation's No. 1, Section 12-10-27, has been shut down at 2355 feet after reporting slight oil showings.

Off Coal Oil Point, Bolsa Chica Oil Corporation's Doyle 191-1, an ocean tideland test, is driving piles for rig. This is the second well to be located on the state permit and will be drilled by Doyle Petroleum Company.

Near Lompoc, W. E. Smith's No. 1, Section 18-7-34, is fishing for drill pipe at 1450 feet, while his No. 2 is building a rig.

On Santa Rosa Island, Standard Oil Company's Island 1 is being abandoned at 6287 feet after finding no oil and gas showings of importance.

Ventura County

Near Conejo, International Oil Producers' Powell 1, Section 33-3-20, is drilling in volcanics at 2665 feet.

In Hopper Canyon, Commander Oil Company's Fennel 1, Section 13-4-19, is drilling in sand and shale at 2350 feet. Hancock Oil Company's Hadley 5, Section 13-4-19, is changing to heavy rotary outfit at 1100 feet.

At Las Posas, Las Posas Petroleum Company's Mahan 1, Section 22-3-20, is drilling in shale at 650 feet.

At Ojai, A. N. Macrate's Kosmon 1, Section 27-4-23, is drilling in hard shale at 1616 feet and will drill to deeper formations.

Near Rincon, Woodrow Petroleum Company's Woodrow 1, Section 4-3-24, is fishing for drilling pipe at 6345 feet.

Near the San Miguelito field, Chanslor-Canfield Midway Oil Company's Hobson A-3, Section 23-3-24, is building roads to the location. Continental Oil Company's Grubb 2, Section 23-3-24, is awaiting rig after completion of water line. Honolulu Consolidated Oil Company's Valenzuela 1, Section 23-3-24, is drilling in a hard shale at 4645 feet and will drill to around 7000 feet.

At Santa Paula, Deuell Petroleum Company's Boosey 1, Section 31-4-20, has been spudded and shut down. J. W. Moser's No. 1, Section 22-4-21, is drilling in brown shale at 875 feet.

In the Sespe district, Merchants Petroleum Company's Cochran 6, Section 1-4-20, will be deepened from 745 feet after cementing 12½-inch casing at 710 feet. H. A. Ivars' No. 7, Section 1-4-20, is reeming in brown shale at 1722 feet.

In the Simi district, C. L. Anderson's Marr 12, Section 36-3-18, is drilling in hard shale at 300 feet.

On Sulphur Mountain, Wilshire Oil Company's Thompson 1, Section 20-4-21, has recovered fish and is cleaning out to deepen at 1560 feet.

Miscellaneous

In Kings County, Knudsen & Schmidt's Avenal 1, Section 36-23-17, is coring a hard shale at 6515 feet.

In Fresno County, Graham-Loftus Oil Corporation's No. 1, Section 20-15-18, is being recemented at 3560 feet after failure to get water shutoff.

In Merced County, Bergman Oil Company's Loma 1, Section 12-12-11, has been shut down at 1960 feet after reporting gas showings.

In San Luis Obispo County, Shell Oil Company's Mahoney 1, Section 4-25-12, is drilling in hard sand at 4950 feet.

Southern California

In the Newhall district, Big Four Oil Company's Brona 1, Section 32-4-16, is drilling in hard shale and sand at 1665 feet. F. J. Garliepp's Newhall 1, Section 14-3-16, is drilling in shale at 375 feet. Hudson Petroleum Company's Alexander 1, Section 1-3-16, is drilling in hard shale at 660 feet. Sanbar Petroleum Corporation's Walker 1, Section 35-5-16, is drilling in hard sand at 1810 feet.

At Newport Beach, Nuoil Company's Banning 1, Section 29-6-10, is fishing for drill pipe at 3040 feet.

In the San Fernando Valley, Willard Marble's Lake 1, Section 6-2-16, is coring a hard sand at 1955 feet.

In the Wilmington district, an extension of the Torrance field, Pacific Oil Investment Company's Lupie 1, Section 28-4-13, is running surface casing at 2865 feet. Wilmington Terminal Oil Company's Banning 1, Section 28-4-13, is drilling in shale and sand at 1035 feet.

In Riverside County, Harry J. Keelsey's Demron 1, Section 21-4-6, is drilling surface sand at 100 feet.

In San Bernardino County, Great

American Petroleum Company's Gapco 1, Section 18-2-8, is rigging rotary at 1310 feet.

In San Diego County, San Felipe Oil Company's Dauner 1, Section 25-11-8, will be deepened from 215 feet.

10 Completions Result of California Field Work

Los Angeles.—Ten wells were completed during the week in California, the largest number finished in some time. The Long Beach field led, accounting for four of the week's total. Two or three of the new wells were above the average.

Company, Well and Location	Initial Production Bbls.	Depth
Buttonwillow—		
Milham Exploration Co., Whittaker 3, 8-28-23	¶14	2550
Long Beach—		
Pernel Oil Corp., No. 1	300	4960
George F. Getty, No. 19	50	6650
Exeter Oil Co., Noll 1	200	4933
General Pet. Corp., K. H. 6	150	4820
Mt. Poso—		
Shell Oil Co., Security 6	1000	1792
Santa Rosa Island—		
Standard Oil Co., Island 1	*	6287
Sunset—		
North American Oil Consolidated, No. 25	100	4740
Ventura Avenue—		
Associated Oil Co., V. L. W. 21	1000	7125
V. L. W. 26	1000	7498

*Failure. †Junked. ¶Million cu. ft. gas.

Five Permits to Drill Issued in California

Los Angeles.—Oil field operations reported to State Oil and Gas Supervisor R. D. Bush during the week show five notices to drill new wells filed, as compared with four during the previous week. Total new wells this year is 22, as compared with 24 at the same time last year.

Union Oil Company led the list during the week, having been granted permits to drill two wells in the Dominguez field. They are Callender 30 and Hellman 20, both wells being located on Section 33-3-13.

Forward Petroleum Corporation started Davenport Community 3, Section 28-3-9, in the Richfield field as the third consecutive location on a large lease in the northeast part of the field.

In the Long Beach field, Pacific Southwest Royalties, Inc., was granted permission to drill L. W. F. 1, Section 24-4-13.

In the Round Mountain field, Petroleum Securities Company was given a permit to drill Coffee 4, an extension test.

Dry Hole Percentage Large in Oklahoma

Tulsa.—During the past few weeks operators in Oklahoma seem to have had a poor break on completions since the ratio of dry holes to producing wells has been considerably higher than usual. During the past week 13 out of the total of 27 completions were dry. The remaining 14 producers yielded a calculated 24-hour initial production of 3628 barrels of oil and 71,000,000 cubic feet of gas. The Wewoka-Holdenville pool of Hughes County led in initial production with 1601 barrels of oil and 71 million cubic feet of gas from three wells.

Winona Oil Company's Harjo 1, SE NW NW Section 29-7n-8e, on the edge of the Fish pool in Hughes County, was perhaps one of the most interesting completions of the week. This test had been located on the apparent edge of the Wapanucka structure and found the formation dry. Drilling on to Wilcox sand, operators were again faced with failure when water was encountered. The hole was then plugged back to 4189 feet in Upper Simpson, where it produced 350 barrels initially. Finding of production in this portion of the formation and at a point which seems to be down structure, leads to the belief that some important Upper Simpson and probably Wilcox sand production may be found by deepening Wapanucka producers higher on structure.

Company, Well and Location	Initial Production Bbls.	Depth
Carter County—		
K. D. Oil, Burton 2, nw sw sw 30-1s-2w	115	2550
Schermerhorn-Ardmore, Fagan 3, nwc sw 19-4s-2w	*	2860
Creek County—		
Mechling, Daniel 2, se sw ne 32-17n-11e	*	642
H. E. Dowd, Sapulpa 1-A, nw sw se 33-18n-11e	10	1598
Wallace et al, Bartlett 1, se nw se 3-15n-7e	*	300
C. E. Edgerton, H. Littlehead 1-A, cnw nw 16-17n-10e	*	1128
Merritt et al, W. B. Pine 5, se c ne 27-18n-8e	15	1395
Holmes Oil, Townsend 1, swc ne 25-19-9e	*	2308
Johnson Oil Ref., Evans-Purcell 1, ne nw sw 29-19n-9e	5	2216
Hughes County—		
Nash Redwine, Uri 1, cne 10-5n-11e	*	1610
Manahan, Chapman 1, nw se sw 10-7n-8e	¶58-81	2941
Tiger 2, sw nw sw 10-7n-8e	17	2926
Armstrong et al, Narcomey 1, ne sw sw sw 10-7n-8e.	¶13-183	2924
Winona Oil, Harjo 1, se nw nw 29-7n-8e	350	4189
Okfuskee County—		
R. Walker, Hawkins 3, csl nw ne 3-11n-11e	22	2267
Okmulgee County—		
Buckingham, Roberson 1-A, cnl nw se 18-13n-13e (owdd)	*	2265
King et al, Doyle 1-A, csl nw nw 20-13n-14e (owdd)	*	2735
Castleman, Thomas 9, nw sw se 23-14n-14e	25	1005
Pawnee County—		
P. Adamson, Jr., F. S. Liscum 1-A, ne sw sw 3-20n-8e	30	1461
H. D. Hambley et al, Mills 1, sw nw se 20-20n-10e	*	1995
Geraldine Oil, Edmunston 9, nw nw sw 30-21n-9e	5	1110
Pontotoc County—		
Benedum & Trees, Mallory 4, nw sw sw 30-5n-5e	300	2603
Pottawatomie County—		
Gypsy Oil, Boyer 1, nw se se 27-6n-3e	*	4152
Sinclair-Prairie, Deatherage 2, ne c nw 28-7n-4e	1150	4132
Seminole County—		
Magnolia Pet., P. Anderson 1, se ne ne 18-9n-6e (owpb)	*	4408
Stephens County—		
Haynes-Chambers, Dolan 1, sw nw nw 15-1s-8w	*	2126
Tulsa County—		
Aggis Drlg., Techarna 3-A, se nw ne 13-16n-13e	*	2246

*Failure. †Junked. ¶Million cu. ft. gas.

Indian Land Oil Subject to Oklahoma Ad Valorem Tax

Washington, D. C.—Limitations upon the exemption from taxes to be enjoyed by companies operating under government contracts or licenses were laid down by the United States Supreme Court February 13 when it affirmed an opinion of the lower court refusing to exempt from Oklahoma ad valorem taxes crude oil belonging to the Indian Territory Illuminating Oil Company in its storage tanks in Tulsa and Payne Counties.

In its arguments the company claimed that the oil was exempt because in its production the concern was operating as

an instrumentality of the United States.

Delivering the opinion of the court, Chief Justice Hughes declared that the oil in question was assessed under the general laws of the state for annual ad valorem taxes as a part of the personal property of the company and constituted its share of oil which it had produced from restricted Indian lands under leases approved by the Secretary of the Interior.

"The holding of the oil in question," he said, "which had been segregated and withdrawn from the restricted lands as petitioner's exclusive property, awaiting disposition at petitioner's pleasure, was for its sole advantage and cannot be said to be so identified with its operations as a governmental instrumentality as to entitle it to exemption from the general property taxes imposed by the state in return for the protection the state afforded."

Independents Ask Shut-In Of Oklahoma City Field

Oklahoma City.—Wirt Franklin, J. Steve Anderson, L. H. Prichard, and Arthur Seeligson, independent operators in the Oklahoma City pool appeared before the Corporation Commission February 16 asking that the pool be shut in by executive order as had been done in 1932.

Corporation commissioners are said to have refused the request for an immediate shut-down and the self-appointed committee threatened to appeal to the governor.

Shut-down action was taken in view of numerous reports that wells were being opened wide or would be opened to capacity within the next few days under the interpretation that recent state supreme court decisions void all proration orders of the commission.

Colonel Cicero Murray denied having heard of the request and stated that he was keeping every man on the force busy watching wells of owners who might try to produce in excess of allowables. Rumors that several large wells already were opened to capacity in violation of regulations were being denied in Oklahoma City.

Oklahoma Wildcats Resume Work With Better Weather

Tulsa.—Comparatively fair weather throughout most of the Mid-Continent area enabled several wildcat operations to be resumed during the week. One of the most interesting tests in Northern Oklahoma was shut down with a fishing job which it is not likely to overcome. Deep Rock et al's Crow 1, NE NE SE Section 26-23n-5e, approximately four miles south of the town of Ralston in northern Pawnee County, drilled to 3100 feet, where operators lost a string of tools. After fishing several days a second string was lost. According to the latest report the fishing crew has recovered a rope socket, stem and set of jars and fishing operations still are under way. In the matter of geologic interest the test already is a failure since it was aimed at production in the Burbank or Bartlesville sand. This body, which has yielded large quantities of oil and gas in a large number of Northern Oklahoma pools, was expected at slightly below 2900 feet. At the expected depth operators encountered shale instead of sand, it being one of the characteristics of this member to grade abruptly into shale up the dip. In the Burbank pool structure plays only a minor part in accumulation, the principal trap being formed by an abrupt sand to shale gradation. Operators on Crow 1 were playing for a similar condition. In event the fishing job is successfully completed, drilling will be continued to Wilcox sand.

Continental Oil Company's Thompson 1, NW SW SW Section 7-24n-4w, in northeastern Garfield County, was rigging up rotary tools.

In Pawnee County, O. M. Mainess' Schildberg 1, NW SW NW Section 27-22n-6e, was still shut down for 10-inch at 1135 feet.

In Noble County, in the area of the rather recently completed Wentz test, Shell Petroleum Corporation's Jerome 1, CSW SW Section 8-20-2w, was plugged back to 5265 feet and shut down after having had 3750 feet of water in the hole at 5306 feet. In this same area a new test was announced, Sinclair Prairie Oil Company's Jerome 1, SWc Section 15-20n-2w, was a cellar. In Section 16-20n-2w, Stanolind Oil & Gas Company and Continental Oil Company's Bolay 1, CSW NW was drilling below 1009 feet. And in Section 33-20n-2w, Stanolind and Amerada Petroleum Corporation's Kolb 1, CNE NW, was drilled to 5118 feet and shot with 10 quarts from 5093 to 5103 feet with no increase over 640 barrels in 24 hours; they had a small show of salt water after days, will run tubing and complete, flowed 547 barrels of oil, now shut in.

In Creek County, O. O. Owens' Fee 1, NWc Section 23-15n-7e, had a small show of gas with some water in sand at 3145 feet. In the same county, Sinclair Prairie Oil Company's Tebe 1, SW SE NW Section 29-14n-7e, had rig up.

In Western Oklahoma, Beckham County, Pattee Royalty Company's Goose Tree 1, SW SE SW SE Section 32-10n-23w, was drilling below 2010 feet.

In Caddo County, Denver Producing & Refining Company's Noe 1, NW SW SW Section 34-10n-10w, was drilling at 5000 feet.

Seminole County

Reports on tests in Seminole County were: Carter et al's Community-Keokuk 1, CN½ NW NE Section 2-10n-6e, had a dry sand at 2834 to 2859 feet, and cored shale from 3009 to 3019 feet; Donley et al's Shepard 1-B, SE SE NE Section 4-8n-8e, was still fishing at 1640 feet. Stanolind Oil & Gas Company and Amerada Petroleum Corporation and Indian Territory Illuminating Oil Company's Palmer 1, NWc Section 36-6n-7e, cored to 2631 feet, getting a smell of oil; had Wapanucka at 2740 feet, Cromwell at 2837 feet, cored to 2862 feet, encountering no show.

In Washita County, Miley Petroleum Company's Montgomery 1, SW NW SE Section 23-9n-17w, remained shut down at 1475 feet; McWhirter et al's Vanderneck 1, NE NE NW Section 3-7n-19w, was also shut down at 1950 feet.

In Pottawatomie County, Hershall-Payne's Lovelace 1, CSW SW NW Section 27-6n-4e, which was formerly reported Payne Drilling Company's Lovelace 1, was a rig.

A new test was announced in Hughes County, Nash-Redwine's Ellis 1, CNW NW Section 9-5n-11e, which was rigging up. In the same county, Nash-Redwine's Uri 1, Section 10-5n-11e, was shut down at 1610 feet.

Reports from Pontotoc County were as follows: Blackwell Oil & Gas Company's Abbott 1, NW SW NE Section 14-4n-6e, pulled six-inch casing and recemented eight-inch. Gilbert and others' Starritt 1, NW NW SE Section 28-4n-6e, was a machine. Williams et al's Kroth 1, NE NE SE Section 33-3n-4e, was testing a show of oil in sand at 1555 feet. The third new test to appear on the wildcat list was H. L. Wirrick's Fee 1, SE SW Section 29-2n-7e, which was announced as a location. Delaney's Hardin 1, NE SW Section 30-2n-7e, had Gilcrease at 1171 to 1176 feet, making 13,250,000 feet of gas with 510 pounds of rock pressure. Choctaw Oil & Gas Company's Thompson 1, SW NE SW Section 1-1n-7e, was rigging up machine.

In Pittsburg County, Independent Oil Company's Dallas James 1-A, twin to the abandoned No. 1, which was first reported as No. 2, CNE NE Section 28-2n-15e, had sand from 371 to 426 feet, and was shut down at 429 feet.

In Coal County, Dodd and Burton's Grigsby 1-A, NW SE NE Section 35-1n-8e, was still shut down at 1100 feet.

Southern Oklahoma

In Marshall County, Lee Cross' Hamlin 1, SE SW SW Section 26-6s-5e, was shut down at 900 feet. In the same county, Thomas et al's Setliff 1, SW SE SE SW Section 36-5s-6e, was drilling below 901 feet.

In Jefferson County, J. D. Wakefield et al's Kelly 1, NW NW SE Section 1-5s-8w, was spudded and shut down.

In Tillman County, Emenhiser et al's Pace 1, CSW Section 3-4s-17w, was drill-

ing below 30 feet, and Gypsy Oil Company's Pitcher 1, NWc Section 26-4s-15w, was drilling below 1303 feet in shale.

The Atoka County test of L. E. Stewart et al, Stewart 1, SEc NE Section 2-4s-10e, had Hunton lime at 1122 feet, a hole full of water at 1125 feet and was drilling below 1243 feet in lime.

In Stephens County, Bridwell Drilling Company's Weldon 1, NE SW SW NE Section 12-3s-8w, had a show of gas at 800 to 810 feet, dry sand from 1120 to 1125 feet, broken sand from 1390 to 1420 feet, cored sand from 1818 to 2210 feet now shut down. California Producing & Operating Company's Sitton 1, NE SE SW Section 12-3s-6w, total depth 648 feet; Gillette Brothers' Cooley 1-A, NW SE NW Section 17-2s-8w, shut down at 2560 feet.

The fourth test to make its appearance on this list was in Carter County, a wildcat offset of E. M. Boring et al, Morgan 1, CNE NW SW Section 4-1s-3w, announced as a location.

Confusion in Identity of Oklahoma Permit Grantees

Tulsa, Okla.—Apparently some difficulty is being experienced in the Oklahoma City pool deciding who is to drill certain locations. Recently operator names on locations in the southwestern portion of the pool have been changed as many as three times. Under the Corporation Commission rule which requires a total of 65 days shut down time before a well can be legally placed on production, operators are permitted an option regarding when the shut down time is taken. It may be served after rig is completed and before spudding if so desired. This option is being followed by most operators. Several times it has been reported that smaller companies or individuals have dug cellar and pits and erected the derrick but after serving shut down time, have been unable to finance drilling of the well. This one factor accounts for many of the changes in operator names.

Two new locations were announced in Carter County, K. D. Oil Company's J. Burton 2, SW NW SW Section 30-1s-2w, and E. M. Boring's Riddle 1, NE NW SW Section 4-1s-3w.

In Creek County, C. G. Tibben's L. Wilson 1, SWC NE Section 18-14n-9e, set 10-inch at 370 feet, and L. B. Jackson's Bankston 3, SW SE NW Section 26-18n-8e was rigging up machines.

Two tests were commenced in Hughes County, Nash Redwine's Badger 1, SWC NW Section 4-5n-11e, a location, and Mid-Continent Petroleum Corporation's Jacobs 2, SW NE SE Section 9-7n-8e, a rig.

In Jefferson County, Farlyn Oil's O. W. Seay 2, NE SW SE Section 3-7s-5w, was a location.

Announcement of an old well deepened was made in Lincoln County, Pure Oil Company's Unglesbee 1, SE SE SE NW Section 1-15n-6e, deepened from 3713½ feet to a total depth of 3732 feet, making 60 barrels of oil.

In Muskogee County, Heinrich-Kohn's Colonel 1, SE NW NE Section 7-15n-17e, was rigging up.

A semi-wildcat test was announced in the Wentz area in Noble County, Sinclair Prairie Oil Company's Jerome 1, SWC Section 15-20n-2w, with cellar and pits dug.

In Okfuskee County, Shock's Autry 1-A, SE SE SW Section 25-10n-11e, was spudding in.

Correction is again made on Armour 1, in Oklahoma County, SE SW NW NW Section 2-11-3w, which was first reported as Phillips Petroleum's then as the well of Clinkscales and Brown and now as Wofford Drilling Company's Armour 1, a rig. Wofford Drilling's Harris 1, NW SW NE NW Section 2-11-3w, was also formerly reported Clinkscales and Brown's, also a rig; Ralph Day and Hodges' Roff 1, SW SE SW SE Section 22-11n-3w, was moving in tools.

In Okmulgee County, Sheldon's Skelton 9, SE NW SE Section 15-13n-12e, was building rig.

In Osage County, S. A. Murphy's No. 1, SE NE NE Section 10-28n-10e, was a location; and a correction is made on A. H. Kasishke Inc. et al's No. 1, NE C NW Section 24-24n-7e, drilling at 100 feet, formerly reported in Section 20.

In Pittsburg County, Independent Drilling Company's Dallas James 2, NE NE Section 28-2n-15e, had sand at 291 to 305 feet and at 305 to 334 feet for a 25 barrel show. The operators also were spudding on their Dallas James 3, in CWL NE NE of Section 28-2n-15e.

First reports from Pontotoc County were as follows: Delaney's D. Hardin 1, SE C NW Section 30-2n-7e, was a location, as was their Hardin 2, SWC NE Section 30-2n-7e; Delaney's Richards 1, NWC SE Section 30-2n-7e, was a cellar; Gilbert's Starrit 1, NW NE SW Section 28-4n-6e, now rigging up was formerly reported in the NW NW SE. Lake Oil's Malloy 2, SW NW SW Section 30-5n-5e, was drilled deeper from an old total depth of 2400 feet to 2546 feet for 500 feet of oil.

First reports were made on two old wells plugged back in Pottawatomie County: Gypsy Oil's Johnson 1, NW SE NW Section 29-7n-5e, plugged back to 4472 feet from old total depth of 4561 feet and shot with 70 quarts at 4472 to 4500 feet, making 200 feet of fluid; Gypsy's Gosland 1, NWC SW Section 9-8n-5e, plugged back from 4117 feet and shot with 40 quarts at 4091 to 4111 feet also made 200 feet of fluid.

In Seminole County, Sinclair Prairie's Talley 6, SE C SW Section 14-7n-6e, was rigging up to drill deeper from an old total depth of 3156 feet; Amerada Petroleum Corporation et al's Chase 8, CS½ N½ SE Section 29-9n-6e, was a rig.

In Stephens County, Athey Lively's Pierce 1, NE C SE Section 18-2s-6w, was drilling deeper from 2060 feet, now drilling below 2075 feet; Dunmar Oil's Dunhan 2, SW NE NE Section 11-2s-8w, drilling below 1908 feet, formerly was reported SW NW NE.

McPherson County Leads In New Kansas Producers

Wichita, Kansas.—Eastern counties fared badly during the week when five out of a total of six completions resulted in dry holes. The other yielded only 2½ barrels initially. Completions reported in the western portion of the state all were from McPherson County where four new wells and an old well drilled deeper resulted in 3345 barrels 24-hour initial production of oil and six and one-half million cubic feet of gas. Of these amounts 2400 barrels of oil and four million cubic feet of gas were from one well.

Company, Well and Location	Initial Production Bbls.	Depth
Chase County—		
Sheedy et al, Leedy 1, se c 36-22s-9e	*	2730
Greenwood County—		
Rhodes et al, Norton 1, se c ne 22-22s-12e	2	1732
Young, Burket 1, ne sw sw 6-24s-12e	*	1840
Paul et al, Bryden 1, ne c se 36-25s-8e	*	1270
Hatfield, Boon 1, swc ne 7-25s-13e	*	1659
Lyon County—		
Sheedy, Bland 1, nw ne nw 20-20n-10e	*	2445
McPherson County—		
Mid-Kansas, Patterson 1, nw sw se 6-20s-1w	340	3419
Spencer et al, Neufeldt 2-B, sw se se 16-21s-3w (owdd)	¶4-2400	3087
Detrick et al, Neufeldt 1, nw ne ne 21-21s-3w	¶1½-400	3095
Derby Oil, Neufeldt 3, se ne sw 21-21s-3w	¶2-65	3030
Rosespring Drlg., Neufeldt 1, ne ne nw 21-21s-3w	190	3438

McPherson County Leads New Work in Kansas

Wichita, Kansas.—The much abbreviated list of Kansas first reports contained only locations within proven or semi-proven areas during the past week. Of further note was the fact that only three counties were represented, whereas, new work for many months has been widely scattered. McPherson County lead with three new starts, all in the Voshell area.

Two first reports were made for Harvey County, Mabee Drilling Company and Shell Petroleum's Martens 3, NW NE SE Section 19-22s-3w, a location; and Skelly Oil Company's Martens 3, SW SE SE Section 19-22s-3w, rig timbers.

Three commencements were announced in McPherson County as follows: Gaume-Maxwell, Georing 1, NE SW SW Section 24-21s-3w, slush pond; W. C. McBride, Inc., H. G. Koehn 1, NE C Section 33-21s-3w, now building rig; Lario Oil & Gas Company's Neufeldt 2, NW SW NW Section 34-21s-3w, a location.

In Rice County, Ramsey's Smith 1, NWC SW Section 32-19s-9w, was a rig.

Western Kansas Still Leads State in Wildcat Activity

Wichita, Kansas.—Recent failures on highly geologized structures in Western Kansas lead to speculation regarding probable plans for exploration in the immediate future. Open flow gauges reveal that flush pools of that portion of the state have been overrated, but there appears little doubt that operators, both large and small, may be expected to carry on a campaign of some extent during 1933. The present list of active wildcat tests includes nine operations in Western Kansas, one of which apparently is already a dry hole, and five in the eastern portion of the state.

In Sumner County, Deal Oil & Gas Company's Tompkins 1, SWc Section 26-33s-1e, had rig up.

In Pratt County, Ninnescah Oil & Gas Company's Hardesty 1, SW SE SE Section 28-27s-11w, was drilling below 3575 feet.

In Reno County, Johnson's Crotts 1, NE NW NE Section 27-26s-10w, was shut down at 266 feet. In the same county, Skelly Oil Company's Cole 1, CSE NW Section 4-26s-8w, was shut down at 3775 feet.

In Eastern Kansas, Greenwood County, Charles Reser's Hull 1, NW SE Section 8-26s-9e, was fishing at 735 feet. In the same county, Knight et al's Moser 1, NE SW SW Section 33-22s-12e, was rigging up machine.

In Harvey County, Phillips Petroleum Company's Weibe 1, NE SE NE Section 30-23s-2e, had a hole full of water at 2935 to 2973 feet, top of the chat at 2973 feet, and was shut down at 2975 feet for casing.

The Stafford County test of Atlantic Oil Producing Company, Gates 1, NW SE Section 27-21s-13w, was rigged up and shut down.

In McPherson County, Lario-Madison's Wilke 1, CSE NE Section 34-20s-4w, had a hole full of water at 2370 feet, and was drilling below 2400 feet.

In Marion County, Ferrell et al's Williamson 1, CNW SE Section 21-19s-4e, had top of the Viola at 2618 feet, a small show of oil at 2619 feet and 1700 feet of water in the hole at 2667 feet, where it is shut down.

Reports on the two tests in Barton County were: Ranken et al's Sooey 1, CSW NE Section 34-18s-12w, set 12-inch at 653 feet and was shut down. Vickers et al's Kerr 1, NW NW SE Section 15-16s-12w, drilling below 1790 feet.

In Ellsworth County, Olson Oil Company and Sinclair Prairie Oil Company's Brock 1, CSW SW Section 17-14s-10w, had Kansas City lime at 2900 feet, top of conglomerate 3160 feet, top of siliceous lime at 3178 feet, tested sand at 3180 to 3223 feet and found 730 feet of water; had 1200 feet of water from 3223 to 3253 feet, shut down for orders at 3258 feet.

In Graham County, Schleimeyer et al's Smith 1, SEc Section 24-8s-25w, had top of the Oswald at 3762 feet with a small show of oil and gas, set six-inch at 3884 feet and was drilling at 3926 feet (corrected depth).

Supreme Court Dismisses Oil Proration Suit

Austin, Texas.—The oldest of the various suits pending in the courts in which oil operators are contesting the validity of the proration rules of the Texas Railroad Commission as applied to properties of the plaintiffs was dismissed at a special session of the Supreme Court of Texas held here February 13. This senior case was that of Danciger Oil & Refining Company vs. State, having traversed an erratic course since the plaintiff obtained a temporary injunction against the commission's proration orders in the Texas Panhandle as result of a petition filed September 25, 1930, in Fifty-Third District Court at Austin.

In dismissing Danciger Oil & Refining Company's case the supreme court reversed the judgments of the trial court and court of civil appeals, and classed the question involved as moot in view of the proration order under attack having expired, while an entirely new law governing proration has since been enacted. The court also held that such action was without prejudice to the state.

Joseph Danciger, vice president Danciger Oil & Refining Company, Fort Worth, stated upon learning of the court decision that "the Supreme Court's opinion shows that the judgements against us by the trial court and the Court of Civil Appeals were reversed, thereby sustaining our contentions, but declared the case moot because of the new law and the new rules and regulations of the railroad commission issued thereunder."

Shell Announces New Line for Royston Field

Fort Worth, Texas.—Royston field, Fisher County, is to receive a second direct pipe line outlet as result of Shell Pipe Line Corporation having agreed to build a five-mile four-inch lateral line to the field from its West Texas-Oklahoma trunk line system in order to serve the nine leases and 12 wells owned by Cranfill-Reynolds Company, Houston. Production of the field has been greatly restricted for more than a year for lack of an ample market, which has been restricted to takings by Humble Oil & Refining Company via the Humble Pipe Line Company's gathering system, and by tank truck sales to independent refiners in West Texas.

Attempt to Legalize More Panhandle Sour Gas Uses

Austin, Texas.—Hearing on a bill to permit the use of sour gas in the Texas Panhandle for other purposes than light and power was heard before a joint committee of the Texas Legislature on Thursday, February 16.

The House Committee on Oil, Gas and Mining, and the Senate Committee on State Affairs, heard arguments on House Bill 201 and Senate Bill 92, which bills are designed to effect this result:

An amendment was offered to include the sweet gas area in this bill.

Representatives of independent operators appeared and requested that the measure be passed to permit them to strip the gas and use the residue for carbon black.

Major companies have constantly opposed this action, declaring it to be a waste of natural resources, and insisting that the gas should be preserved for use as light and power when the time arrives that it is economical to do so.

Independent producers would receive about ¼ cent per thousand cubic feet for the gas sold for stripping purposes, and it was pointed out that as there is

practically no market for carbon black at this time, the residue would be wasted.

At the present time, the gasoline plants are offering producers 25 per cent of the sale price of the gasoline in payment for the gas, rather than payment for footage of gas passing through the plant from any one producer.

The independents insisted that the argument was false which was advanced to the committee by major operators, that by keeping the wells closed in, pressures were built up and open flow capacity increased.

Sulphur Water Condemns Ordovician Lime Test

San Angelo, Texas.—Flowing sulphur water production without evidence of oil or gas has virtually eliminated the Ordovician lime test on the J. S. Todd ranch, Crockett County, of Stanolind Oil & Gas Company and other unit members, with the well bottomed at 8041 feet, or 1035 feet in the lime section. Undaunted by complete absence of oil or gas, the owners have plugged back the hole with cement to 7746 feet to give the lime another swabbing test, although the well proved dry when previously unloaded and swabbed via three-inch tubing at 7357 feet and again at 7735 feet. The bulk of the leases comprising the 4000-acre unitized block were scheduled to expire February 23, but most of same were validated February 10 when Stanolind Oil & Gas Company et al's Todd 1-A, CNW NW Section 28, Block "WX," GC&SF Ry. Survey, flowed 20 barrels oil in two hours from shallow lime at 1462-63 feet, indicating a 150-barrel well, or better when given a complete daily gauge.

The water level in the deep test on the Todd ranch was not ascertained. Formation cores carrying evidence of oil saturation in the Ordovician series were extracted at several levels, but apparently the upper section lacked sufficient porosity to produce. Another deep test on the structure is not likely to be drilled by the group sharing in the above unit although Superior Oil Company of California, owner of a large block of leases to the east, may later undertake the drilling of a second deep test. A site to the east of Todd 1 is generally considered to be the most desirable for a second location.

Shallow development work on the Todd ranch to try and validate short term leases was terminated last week when Continental Oil Company abandoned its second test in two weeks, although the first of a three-well program made a small pumper. Todd 1-A, Section 23, Block "WX," was plugged at 2177 feet, and Todd 1-B, Section 31, also proved a failure, having hole full of sulphur water at 1516 feet.

11 Completions Recorded In West Central Texas

Ranger, Texas.—The West Central Texas district is credited with having scored 11 completions, including three oil producers with an aggregate of 178 barrels of new production, and one small gasser. All completions were at shallow depth, indicating that the development of regular deep lime and sand horizons in the district has subsided until a more commensurate crude price is obtainable.

The list of completions follows:

Company, Well and Location	Initial Production Bbls.	Depth
Brown County—		
Green & Ice, J. Byler 7	15	1304
Callahan County—		
Grass Roots Oil Co., C. C. Andrews 1	*	560
Hunt & Johnson, J. Cottle 1	*	264
Geo. H. Perry et al, A. Hickman 1	*	462
Star Drilling Co. et al, E. L. Finley 1	*	1000
Shackelford County—		
Douglas et al, Carter 7	13	615
Freeman et al, Morris-Buie 2	150	1616
J. R. Hart et al, E. Schkade 1	*	630
J. H. Sedwick et al, Shackelford County 1	*	954
Union Oil & Mining Co., Hill 3	¶¼	740
Walker et al, Cox 2-A	*	508

*Failure. †Junked. ¶Million cu. ft. gas.

Midland, Texas.—Magnolia Petroleum Company has started work dismantling three 80,000-barrel steel tanks that were formerly used in handling surplus West Texas crude at its large tank farm near Midland. Two of the tanks are to be shipped to Beaumont to be added to the company's refinery tank farm, while the other tank will be stacked at its present site for the time being.

Two Producers and One Gas Well in Gray County

Pampa, Texas.—Completions in the Texas Panhandle district during the past week were confined to Gray County, where two oil wells and a gasser added new production amounting to 400 barrels oil and 36,500,000 cubic feet gas.

The gas flow was scored by Texoma Natural Gas Company's L. A. Aebersold 1-G, located on a sub-lease of the Gulf Production Company, with production from lime at 2495-2685 feet. Tripplehorn Brothers et al's H. B. Lovett 1, located on a sub-lease of Stanoline Oil & Gas Company, pumped 100 barrels initial from granite wash formation at 3154-56 feet after encountering salt water at 3075-81 feet, with an elevation of 3028 feet.

The list of completions follows:

Texas Panhandle

Company, Well and Location	Initial Production Bbls.	Depth
Gray County—		
Gulf Prod. Co., T. W. Catlin 2	300	3156
Texoma Nat'l Gas Co., L. A. Aebersold 1-G	¶36½	2685
Tripplehorn Bros. et al, H. B. Lovett 1	100	3156

*Failure. †Junked. ¶Million cu. ft. gas.

Young County Leads in North Texas Completions

Wichita Falls, Texas.—Five oil producers included in the 16 completions credited to the North Texas district during the past week accounted for an aggregate of 95 barrels of oil production. Wichita County contributed a 10 barrel pumper, and the balance of the new production was derived from shallow wells in northern Young County.

The list of completions follows:

North Texas

Company, Well and Location	Initial Production Bbls.	Depth
Archer County—		
W. L. Wheeler et al, J. Penartz 1	*	1068
Clay County—		
Alexander et al, Snedecker 1	*	902
Grayson County—		
John Marshall et al, B. F. Mauk 1	*	610
Jack County—		
J. L. Slusher et al, Patton 1	*	100
Wichita County—		
W. H. Hammon et al, T. E. Mitchell 13	10	1825
Schlaffke & Blair, Kinkerman 1	*	451
E. J. Stump et al, L. Chilson 2	*	1900
Young County—		
Gilmore & Deininger, Stewart 1	*	605
Helena O&G Co., Graham 2, Sec. 414	*	708
Iron Mountain Oil Co., Tatum 18, Sec. 1908	5	656
King Royalty Co., Larimore 46	50	657
John H. Kleiner et al, J. M. Kirkland 1	*	750
Kleiner & Riggs, Larimore 12-B	20	705
M. E. Peters et al, Carpenter 1, Sec. 164	10	890
S. H. Simmons et al, Cox 1	*	600
Wooten & Reed, Hinson 3, Sec. 1448	*	859

*Failure. †Junked. ¶Million cu. ft. gas.

Three West Texas Wells Yield 460 Barrels Oil

San Angelo, Texas. — The West Texas district added five completions during the past week, including three oil producers with an aggregate of 460 barrels of oil, one dry hole and a junked hole.

Completions for the week follow:

Company, Well and Location	Initial Production Bbls.	Depth
Crockett County—		
Continental Oil Co., J. S. Todd 1-A, Sec. 23	*	2177
Stanolind O&G Co. et al, J. S. Todd 1-A, Sec. 28...	250	1463
Pecos County—		
Continental Oil Co.-Stanolind O&G Co., Tippett 2..	15	599
Reagan County—		
Big Lake Oil Co., University 181	†	2800
Winkler County—		
Sid Richardson et al, Scarborough-Tidal 1	195	2935

*Failure. †Junked. ¶Million cu. ft. gas.

Two Completions Leave One Operation in Van

Tyler, Texas.—Completion of two small oil producers in the Van field during the past week reduced the field activity to only one drilling, and two other locations moving in rotary. Pure Oil Company scored both of the new wells. A. D. Clark 10, located on 24-acre part of 62½-acre tract in the southeast part of the unit block, flowed 40 barrels initial via three quarter-inch choke after considerable swabbing from regular sand at 2724-2892 feet. Pure Oil Company's B. W. Russell 4, located on 30-acre lease, David Rose Survey, and on south end of the structure, pumped 35 barrels daily from broken sand at 2889-2966 feet.

The completions for week follow:

Van Field

Company, Well and Location	Initial Production Bbls.	Depth
Pure Oil Co., A. D. Clark 10..	40	2892
B. W. Russell 4	35	2966

*Failure. †Junked. ¶Million cu. ft. gas.

State Gets Injunctions Against Alleged Violators

Austin, Texas.—Another long list of alleged violators of proration rules of the Texas Railroad Commission in the East Texas field were placarded with injunctions by District Judge W. F. Robertson here February 16, as result of complaints filed by the Attorney General's Department.

The new group included property owners that have been threatening to throw their wells open for some weeks through inability to have inequal drainage by offsets terminated while others have been listed as chronic violators. Some of the leases operated by the East Texas Oil Refining Company not designated in the federal court injunction held against the company by the state were restrained from further over-production by Judge Robertson.

Others enjoined include Jim Cloud, Inc., Columbia Oil & Gas Company, Baggett & Byers, M. J. Mumm, F. W. Buford and Skelly-Blackwell Oil & Gas Company, Joe M. Burnham and J. W. Pearce, Great Western Oil Corporation, W. W. McDonald and R. B. Campbell, and A. C. Parker.

Atlas Tanks and Records Opened to Commission

Fort Worth, Texas.—An application was submitted by Atlas Pipe Line Company to Federal Judge Jas. C. Wilson here February 16, requesting that the court set aside a Travis County District Court injunction issued to the state earlier in the week that permitted the railroad commission to gauge tanks and check the records of the company as owner of a trunk line extending from the East Texas oil field to Shreveport.

Atlas Pipe Line Company has been beyond the jurisdiction of the proration enforcement officers for months through having a federal court injunction.

Judge Wilson withheld judgment on the plaintiffs plea in order to study the facts involved.

Kilgore, Texas.—Free access to the tanks and properties of the Atlas Pipe Line Company, operator of an eight-inch trunk line delivering crude from the East Texas field to refineries, tank farms and connecting lines near Shreveport, was afforded representatives of the Texas Railroad Commission beginning February 15 for the first time in months. The company had been immune from investigation, or interference in its operations by reason of a federal court injunction against the commission. The state attempted to have the restraining order set aside and a cross-action suit filed at Fort Worth February 11 at a hearing conducted by Federal Judge Jas. C. Wilson. The court held that it did not have jurisdiction. Assistant Attorney General Maurice Cheek obtained an injunction against Atlas Pipe Line Company through District Judge W. F. Robertson at Austin on February 14, and the company readily acceded to the orders of the Travis County court although its original federal court restraining order is apparently in effect.

Burton Drilling Company Loses Proration Lift Plea

Dallas, Texas. — Burton Drilling Company, Dallas, was denied relief from proration restrictions imposed on its property in the East Texas oil field by the Texas Railroad Commission when an application for a temporary injunction was given a hearing here February 13 by Federal Judge William H. Atwell. An apparent strong case presented by the plaintiff collapsed when the state submitted evidence through Assistant Attorney General Maurice Cheek that a by-pass had been uncovered on the property involved, and that the plaintiff had exceeded proration on February 6 and 7 by producing an aggregate of 3200 barrels of oil from three wells. As result of a cross-action suit the state was given a restraining order prohibiting Burton Drilling Company from further violations.

Pete Burton, president of Burton Drilling Company, offered evidence to substantiate claims that his company's Florey lease, located on the extreme west edge of the Kilgore area, was in danger of being flooded with water through normal rise of the water table on the west side of the structure because of the maximum allowable of 31 barrels daily per well not being sufficient to recover oil now present. Protest was also made by the plaintiff against the present policy of giving 40 barrels allowable daily to pumping wells in the field, while the largest flowing wells are limited to 31 barrels daily. Should a three-judge federal court decision now pending as result of recent trial at Houston fail to cover the points raised by Burton Drilling Company, Judge Atwell promised to give the plaintiff a hearing here before a three-judge court on March 10 and 11. Cheek advised the court that the decision on the Houston case would likely be rendered before the above trial date.

East Texas Completions Drop to 36 For Week

Tyler Texas.—The East Texas oil field contributed 36 completions during the past week, with flowing production recorded by all but one east edge well in the Kilgore townsite area, Gregg County. This single pumper was drilled by J. C. Hurley of Houston et al on the M. B. Hughey tract, resulting in 40 barrels oil in 18 hours from broken sand at 3493-3569 feet, with surface elevation of 350 feet.

This apparent lull in field activity is

destined to continue until Humble Oil & Refining Company proceeds to drill up the 137 new locations listed last week as having been approved by the Texas Railroad Commission. A number of the locations scheduled by the above company will automatically incur offsets for neighboring lease owners.

Completions for the week follow:

East Texas

Company, Well and Location	Initial Production Bbls.	Depth
Joiner Area—		
American-Liberty Oil Co., E. E. Thrash (31-ac) 4	8500	3673
Gulf Prod. Co., Ida Holt (69-ac) 9-B	7500	3798
Humble Oil & Ref. Co., J. W. Turner (400-ac) 15	8600	3717
Magnolia Pet. Co., S. W. Moores (36-ac) 3	8500	3685
Mid-Kansas O&G Co., H. Clay (130-ac) 7	1200	3666
M. M. Cross (814-ac) 40	8000	3632
Mortimer-Sibling & Williams, T. H. Goforth (4-ac) 1	8000	3749
J. C. Sanford et al, E. L. Pinkston (3-ac) 1	9600	3622
Sinclair Prairie Oil Co., A. S. Jarvis (256-ac) 17-C	7000	3692
Sun Oil Co., R. Jeff Hendon (100-ac) 5	1600	3584
Tide Water Oil Co.-John E. Mabee, Inc., J. B. Wilson (32-ac) 4	8500	3653
Kilgore Area—		
Devonian Oil Co., R. A. Motley (423-ac) 18	3500	3785
Finley & Dyke, G. H. Blackman 2	3600	3688
Gulf Prod. Co., C. E. Christian (164-ac) 11-A	9500	3682
Houston Oil Co., M. B. Hughey-Heep (60-ac) 5-A	10,500	3518
Humble O&R Co., L. D. Crim 69	11,000	3627
J. Wooley (100-ac) 6	9000	3774
J. C. Hurley et al, M. B. Hughey 2, Blk. 171	60	3569
Mazda Oil Corp., King 3	6500	3648
J. Miller et al, Andrews 1	9000	3660
Rhoads Drlg. Co., Sabine River 8, Tr. 5	8500	3521
Pierce & Moore, Baton 1	11,000	3648
Sinclair Prairie Oil Co., A. A. Lockhart (133-ac) 14	10,000	3615
Stroube & Stroube, J. R. Beall (28-ac) 3	1500	3560
Sun Oil Co.-Texas Seaboard Oil Co., Cole (264-ac) 20	9600	3550
Universal Oil, Gas & Mining Co., H. Adkins (4-ac) 2	9200	3647
Longview Area—		
Atlantic Oil Prod. Co., J. Bander (83.9-ac) 11	11,500	3672
Byrd & Frost, Inc., J. J. Reppond (50-ac) 4	10,000	3708
Everitt Oil Co., A. J. Sanders (88-ac) 5	8500	3656
Grisham-Hunter Corp., T&P Ry. Co. (10-ac) 4	8000	3624
B. F. Phillips et al, Massey 1	9600	3720
Sun Oil Co., E. C. Shoults (100-ac) 6	8000	3651
Mose Thomas (72-ac) 6	12,000	3566
A. F. Waggoner & Barney McConnell, J. Williams (100-ac) 3	1500	3658
Yount-Lee Oil Co., J. C. & R. S. McKinley 2-E	9000	3611
J. C. & R. S. McKinley 3-E	9000	3632
Henderson County—		
Brownsboro Oil Corp., J. T. Debman 1	*	4130
Robertson County—		
C. A. Everts Drl. Co. et al, Walter Cook 1	*	6109
Upshur County—		
F. A. Fuller et al, W. M. Shettlesworth-Simms 1	*	3748
J. K. Wadley, C. H. Lyons & J. P. Evans, H. W. Duffey 1	*	3944
H. E. Hall 1	*	3800
W. S. Jones 1	*	3718
Van Zandt County—		
J. A. Gardner et al, J. Leonard 1	*	6402

*Failure. †Junked. ¶Million cu. ft. gas.

Jamestown Trend Wildcats Completely Disappointing

Tyler, Texas.—The four-well wildcat drilling program conducted by J. K. Wadley and others in the Jamestown area, located in eastern Upshur County and directly north along the shoreline from the East Texas field, has apparently proven a complete disappointment; the two most promising wells yielding salt water last week. The other two tests had previously been considered eliminated by reason of missing the Woodbine sand in one instance, and encountering salt water at the expected oil level in the other. Wadley et al carried on one of the most ambitious wildcat projects experienced by East Texas in recent years in the Jamestown area within the past six months, having gathered in virtually all available leases, and considerable royalty in order to have a monopoly in the event the expected oil field materialized. An abandoned railroad right-of-way was leased as an example of the thorough manner in which the group blanketed the area while drilling the four tests to the Woodbine sand level.

Wadley et al's W. S. Jones 1, Jas. M. Dunn Survey, tested salt water with show of oil after drilling out cement plug and deepening from 3701 to 3718 feet, although it had been regarded as an oil producer in the making because of oil saturated sand recovered at 3690-92 feet, with an elevation of 263 feet. A string of 6⅝-inch pipe was cemented at 3684 feet in Jones 1 early last November, and the rig moved off. W. M. Shettlesworth 1, located about a half-mile north of the above, was given drill stem test in Woodbine at 3730-48 feet, with elevation of 297 feet, and also made salt water with show oil. The latter was drilled by F. A. Fuller, who was listed as trustee. Wadley et al's Hall 1, W. H. McKee Survey and within the city limits of Jamestown, has been idle since two drill stem tests early in January yielded only a show of oil, with the hole bottomed in Georgetown lime at 3769-3800 feet. The northernmost test of the quartet was drilled on the H. W. Duffey tract, Thos. Starr Survey, and it is credited with having logged salt water sand at 3827 feet, and Georgetown lime at 3929-3944 feet, with an elevation of 369 feet, with no indications of oil or gas.

Plugging orders issued last week for J. Alvin Gardner et al's wildcat on the J. Leonard tract, P. Mason Survey, Van Zandt County, at 6402 feet stripped the East Texas wildcat report of its deepest operation. A second deep test was dropped when C. A. Everts Drilling Company et al abandoned their Robertson County wildcat on the Walter Cook tract, Henry Survey, in Austin chalk at 6109 feet.

Pending wildcat tests in the Woodbine sand belt of East Texas are extremely few at this time, as result of the long string of disappointments. A. R. McElreath and F. W. Suggett, Fort Worth operators, have assumed obligation to drill a Woodbine sand test in the near future in acquiring an almost solid block of about 10,000 acres of leases in Henderson County and due east of Murchison. Surface geology on this block is reported to have merit in supporting a contention that an abnormal uplift condition prevails, being somewhat similar to the Van field structure, located due north, but considerably deeper. Royalty trading has been active on tracts comprising the above block, while bordering leases have been in demand within the past 10 days with major companies doing most of the buying. Humble Oil & Refining Company and Gulf Production Company are joint owners of a large block adjoining the above of the west and northwest.

In Anderson County, McAlister-Barclay et al's J. C. Beard test on 62-acre tract, J. Trimmer Survey, shut down after testing oil show 1450-1518 feet.

The Bowie County test of Roy E. Anderson et al on A. Y. Breckenridge 464-acre farm, M. Dykes Survey, had Pecan chalk at 1362-1805 feet, with elevation of 352 feet, is idle at 3052 feet after testing

salt water. Tom Bell, W. J. Dobbs & Fred S. O'Neill's Mrs. T. M. Moss (465-acre) 1, O. D. Watson Survey, with elevation of 305 feet, topped Nacatoch sand 1135 feet, and is standing at 2900 feet.

In Cherokee County, H. D. Hamilton & J. C. Haynes' (Saranac Oil Co.'s) P. E. Jones (132-acre) 1, J. D. Hamilton Survey, has derrick up for shallow test. Loring Oil Company's F. M. Swearington 1 on 55 acres, Oliver Lund Survey, topped Pecan chalk 3592 feet, and Austin chalk at 4620-4860 feet, with elevation 387 feet, and tested salt water in Woodbine sand 4913-24 feet, now fishing in red beds at 5005 feet.

The Henderson County test of Brownsboro Oil Corporation (W. F. Bridwell, Hunt et al) on the J. T. Debman 40-acre lease, J. N. Sullivan Survey, logged Pecan chalk at 3040-3160 feet, with elevation of 452 feet, and abandoned in Austin chalk at 4060-4130 feet. H. H. Myers et al's M. E. Olson (80 acres) 1, Geo. Wilson Survey, logged Pecan chalk at 3070-3245 feet, with elevation of 512 feet, standing at 3905 feet.

The Hopkins County test of Burgess & Simpson on Mt. Vernon National Bank fee land in M.E.&P. Ry. Survey, has elevation of 385 feet, logged Pecan chalk at 1543-1598 feet, shut down 2155 feet.

In Kaufman County, Elzey, Bentley & Brewer's J. B. Hunter 1, R. Sowell Survey, rigging up.

In Leon County, Shell Petroleum Corporation, Penn Oil Company, J. R. Black et al's Wm. Phillips (164-acre) 1, E. A. Swayze Survey, logged Pecan chalk at 4135-4181 feet, and Austin chalk at 4841-5570 feet, with elevation of 423 feet, coring sandy-shale 6188 feet.

The Morris County test of Buchanan, Burkhalter et al's on the Staggers 65-acre tract J. D. Nelson Survey, has elevation 370 feet, plugged back from 3672 feet and re-drilled from 3420 to 3679 feet, and shut down with casing trouble.

In Red River County, The Ajo Oil Corporation's Nichols-Daniels 1 on 880-acre tract, Hugh B. Shaw Survey, is a location. L. G. Priest et al's R. W. Peek (220-acre) 1, Abram Wagley Survey, is idle at 1300 feet.

The Robertson County test of C. A. Everts Drilling Company and Dr. W. M. Manness et al on Walter Cook tract, Henry Survey, topped Austin chalk at 5952 feet, abandoned in chalk 6109 feet.

In Rusk County, Geo. F. Hudson et al's Jeff H. Phillips 1 on 148-acre tract, N. Villareal Survey, is drilling 1925 feet. Jordan & Ramsey's L. W. Prior (53-acre) 1, Walker Pettit Survey, is a rig. Malone et al's H. S. Williams 1, is a derrick. B. F. Wiley et al's J. L. Gary 1 on 200-acre tract, J. L. Mora Survey, is a location.

In Upshur County, F. A. Fuller, J. K. Wadley-Lyons et al's W. M. Shettlesworth-Simms 1 on 50-acre tract, Jas. M. Dunn Survey, logged Pecan chalk 2310-2990 feet, with elevation of 297 feet, will abandon after testing salt water on drill stem test at 3730-48 feet. Newsom & Orr's D. J. Smith 1, J. R. Davis Survey, topped Pecan chalk at 2345 feet, with elevation of 310 feet, is idle at 2680 feet. Trans-American Oil Company's S. P. Williams 1 on 2500-acre tract, Estevan Moro Survey, is a location. J. K. Wadley-C. H. Lyons & J. P. Evans' H. W. Duffey 1, Thos. Starr Survey, elevation 369 feet, Pecan chalk 2513-2975 feet, and Austin chalk 3725-40 feet, abandoned in Georgetown lime 3929-44 feet.

In Van Zandt County, J. Alvin Gardner-Roy C. Ling et al's J. Leonard (53½-acre) 1, P. Mason Survey, topped Woodbine sand about 4240 feet, and Georgetown lime 4950 feet, with elevation of 511 feet, abandoned at 6402 feet.

In Wood County, the Wood County Oil & Gas Company's test on the Guy Davis tract, John R. Clute Survey, shut down at 3385 feet.

Montgomery County Leads In Texas Permits to Drill

Austin, Texas.—Montgomery County, predicted to complete more than 600 wells this year, easily led in permits to drill issued by the state when 33 out of the state's total of 125 permits called for new wells in that county.

Other counties accounting for a good share of the state's total permits were Archer, Gregg, Rusk and Young.

In Archer County, Fresno Oil Company, Burkburnett, was granted a permit for H. O. Prideaux 31 (180-ac), in the John Dorsey Survey, 150 feet from the south and west lines. White, Duncan, Holt & Redford, Wichita Falls, were granted a permit to drill S. Webb 15 (40-ac), 450 feet from south and east lines of No. 6 I&GN Survey. F. H. E. Oil Company, Fort Worth, was granted a permit to drill W. H. Coffield 2 (518-ac), 330 feet from south and west lines of C. Lydings Survey. D. L. Wolf, Olney, was granted a permit to drill R. O. Andrews 1 (171-ac), 400 feet from north and 1200 feet from west line of 1399 TE&L Survey. R. C. Parker et al, Graham, was granted permit to drill F. Brezina 1 (100-ac), 150 feet from north and 1200 feet from east line of 2410 TE&L Survey. E. S. McLaughlin, Wichita Falls, was granted a permit to drill B. Garnett 1 (50-ac), 1798 feet from north and 968 feet from east line of J. Walker Survey.

In Austin County, Humble Oil & Refining Company, Houston, was granted a permit to drill Mrs. A. Diemar 5 (226-ac), 713 feet from northeast and 2000 feet from northwest line of Wm. Harvey Survey.

In Bee County, The Texas Company, Houston, was granted a permit to drill D. W. Cox 2 (80-ac), 330 feet from south and east lines of J. M. Uranga Survey. B. Mauldin, Pettus, was granted a permit to drill Fee 2 (50-ac), 609 feet from west and 960 feet from south line of Kerr Survey.

In Bexar County, R. N. Herod, San Antonio, was granted a permit to drill H. Frost 1 (26-ac), 150 feet from south and east lines of Section 48, F. Rolen Survey.

In Brazoria County, Amerada Petroleum Corporation, Fort Worth, was granted a permit to drill (amended location) Seaburn 3, (2313-ac), 4550 feet from north and 1150 feet from west line of Austin & Williams Survey. The Texas Company, Houston, was granted permits to drill C. Natali 1 (49-ac), 300 feet from south and east lines of Block 43, H. N. Little Survey; J. M. Davis 1 (40-ac), 250 feet from east and 400 feet from south line of Block 31, H. N. Little Survey.

In Cass County, T. H. Pardoe, Marshall, was granted a permit to drill S. A. Orr 1 (316-ac), 140 vs. from west and 530 vs. from north line of G. W. Morris Survey.

In Cherokee County, Mid-Continent Petroleum Corporation, Tulsa, Oklahoma, was granted a permit to drill W. F. Stone 1 (46-ac), 330 feet south of center of north line of M. S. Coy Survey.

In Clay County, Bell, Metzner & Kokey, Wichita Falls, were granted a permit to drill K. Eynard 1 (20-ac), 150 feet from south and east lines of Block 7, F. Longardio Survey.

In Cooke County, W. F. Russell, Gainesville, was granted a permit to drill T. E. McFadden 1 (70-ac), 1250 feet from east and 660 feet from south line of G. M. Bond Survey.

In Denton County, B. T. Head, Jr., Dallas, was granted a permit to drill W. B. Goldsmith 1 (100-ac), center of T. B. Garvin Survey.

In Eastland County, Hickok Producing & Development Company, Eastland, was granted a permit to drill R. A. Eppler 1 (80-ac), 660 feet from north and 470 feet from west line of Section 78, Block 4, H&TC Survey.

In Fort Bend County, Humble Oil &

Refining Company, Houston, was granted permits to drill Lockwood & Sharp B 12 (938-ac), 1723 feet from east and 1129 feet from south line of Jno Rabb Survey; Lockwood & Sharp A 11 (469-ac), 1723 feet from east and 379 feet from south line of Jno. Rabb Survey; Lockwood & Sharp A 14 (220-ac), 4173 feet from west and 526 feet from south line of Jno. Rabb Survey.

In Gregg County, Dyck Oil Company, Tulsa, Oklahoma, was granted a permit to drill G. Blackman 2 (50-ac), 145 feet from north and 330 feet from east line of W. P. Chism Survey. Stroube & Stroube, Corsicana, were granted a permit to drill J. R. Beall 4 (27-ac), 64 feet from west and 320 feet from south line of M. Van Winkle Survey. Louis Sykes, Tyler, was granted a permit to drill F. E. Stancil 6 (32-ac), 743 feet from east and 330 feet from south line of T. Allen Survey. Navarro Oil Company, Houston, was granted a permit to drill T. B. Harris 3 (80-ac), 158 feet from north and 188 feet from east line of W. H. Castleberry Survey. Houston Oil Company, Houston, was granted a permit to drill M. B. Hughey 5 (60-ac), 192 feet from east and 172 feet from south line of M. McCurry Survey. Darby Petroleum Company, Tulsa, Oklahoma, was granted a permit to drill W. H. Richey 6 (43-ac), 1508 feet from west and 660 feet from south line of H. H. Edwards Survey. The Texas Company, Houston was granted permits to drill M. T. Cole 11 (145-ac), 35 feet from west and 60 feet from south line of E. L. Walker Survey; T. W. Lee 15 (210-ac), 125 feet from south and east line of F. W. Johnson Survey. Gulf Production Company, Houston, was granted a permit to drill W. Clayton 5 (50-ac), 105 feet from north and 2048 feet from east line of L. B. Outlaw Survey. Humble Oil & Refining Company, Houston, was granted a permit to drill H. M. Lawrence 13 (164-ac), 330 feet from north and 1077 feet from east line of D. Ferguson Survey. Magnolia Petroleum Company, Dallas, was granted permits to drill E. Magrill 3 (22-ac), 359 feet northwest of No. 1, D. Sanchez Survey; W. R. Nicholson 4 (50-ac), 779 feet from north and 330 feet from west line of D. Sanchez Survey. Sun Oil Company, Dallas, was granted a permit to drill A. G. Morton 3 (336-ac), 660 feet south of No. 2, S. Baggett Survey.

In Hidalgo County, Carl & Johnston, Edinburg, were granted a permit to drill W. M. Doughty 1 (5027-ac), 6251 feet from east and 6822 feet from south line of No. 9, San Salvadore Survey.

In Jack County, McKee Drilling Company, Fort Worth, was granted a permit to drill J. T. Hunt 5 (160-ac), 1170 feet from west and 420 feet from south line of W. Britt Survey.

In Lee County, Sayre Oil Company, Taylor, was granted a permit to drill J. H. Rister 1 (106-ac), 200 feet from west and 800 feet from south line of Pruett Survey.

In Montgomery County, Humble Oil & Refining Company, Houston, was granted permits to drill L. B. McComb 6 (150-ac), 466 feet from south and 500 feet from west line of L. Smith Survey; H. N. Moore 23 (1076-ac), 466 feet south of center of north line of L. Smith Survey; H. N. Moore 6 (989-ac), 3617 feet from east and 467 feet from south line of L. Smith Survey; R. L. Cartwright A 11 (253-ac), 466 feet from north and 2448 feet from west line of J. A. Davis Survey; Bevier-Dobbins 9 (229-ac), 425 feet from north and 3610 feet from west line of Ransom House Survey; T. P. McComb 3 (80-ac), 466 feet from south and west lines of L. Smith Survey. Sun Oil Company, Dallas, was granted a permit to drill W. F. Stewart 3 (120-ac), 700 feet from north and 1040 feet from east line of W. F. Stewart Survey. Mortex Oil Company, Houston, was granted a permit to drill South Texas Development 1 (20-ac), 150 feet from north and 330 feet from west line of No. 13 T&NO Survey. R. C. Horne, Houston, was granted permits to drill South Texas Development 1A (18-ac), 345 feet from west and 234 feet from south line of Block 5, T&NO Survey; South Texas Development 1B (18-ac), 345 feet from west and 234 feet from south line of Block 5, T&NO Survey. Horne & Neuhaus, Houston, were granted a permit to drill South Texas Development 1 (16-ac), 378 feet from west and 467 feet from south line of Block 5, T&NO Survey. L. L. Horne, Houston, was granted a permit to drill South Texas Development 1 (18-ac), 345 feet from west and 234 feet from south line of Block 5, T&NO Survey. Standard Oil Company of Kansas, Houston, was granted a permit to drill Smith-Ratliff 5 (102-ac), 466 feet from south and west lines of No. 6 T&NO Survey. Skelly Oil Company, Houston, was granted a permit to drill South Texas Development 1 (32-ac), 467 feet from north and 378 feet from west line of No. 5, T&NO Survey. McAlbert Oil Company, Houston, was granted a permit to drill Keystone Mills 1 (40-ac), 433 feet from north and 434 feet from west line of A. Steel Survey; 2, 433 feet from south and 434 feet from west line of survey. Southern Drilling & Production Company, Houston, was granted a permit to drill South Texas Development 1 (5-ac), 143 feet from north and 379 feet from east line of Section 5, T&NO Survey. Midland Oil Company, San Antonio, was granted a permit to drill V. Walters 4 (108-ac), 466 feet from south and west lines of W. Strickland Survey. Tide Water Oil Company, Houston, was granted permits to drill C. Lewis 17 (698-ac), 1570 feet from west and 467 feet from south line of C. B. Stewart Survey; 16, 467 feet from south and west lines; R. G. Krohn 1, (162-ac), 467 feet from north and east lines of S. H. Bryan Survey; 2, 2157 feet from north and 467 feet from east lines; W. D. Granger 1 (200-ac), 467 feet from north and west lines of No. 14, T&NO Survey. Houston Oil Company, Houston, was granted a permit to drill R. L. Cartwright 4 (300-ac), 799 feet from north and 332 feet from east line of Jno. Davis Survey. Gulf Coast Drilling Company, Houston, was granted permits to drill Mrs. E. E. Hensley 1 (44-ac), 486 feet from west and 466 feet from south line of A. Steel Survey; 2, 466 feet from north and 486 feet from west line; Keystone Mills 5 (648-ac), 466 feet from north and east lines of Section 4, T&NO Survey; 7, 466 feet from north and west lines. Alpha Petroleum Corporation, Houston, was granted permits to drill Keystone Mills 2 (200-ac), 466 feet from south and east lines; 3, 466 feet from west and 1492 feet from south line; P. J. Krohn A 2 (100-ac), 550 feet from east and 1186 feet from south line of S. H. Bryan Survey; 3, 791 feet north of No. 2; 4, 791 feet north of No. 3.

In Maverick County, M. S. Holliday, San Antonio, was granted a permit to drill State Bank & Trust 1 (320-ac), southeast corner of Section 40.

In Nueces County, Gulf Port Oil Corporation, San Antonio, was granted a permit to drill R. Morgan 1 (80-ac), 330 feet from north and east lines of No. 403 Survey. Benedum-Trees Oil Company, Pittsburgh, Pennsylvania, was granted a permit to drill F. J. Smith 1 (100-ac), 330 feet from south and east lines of Block 35, H. B. Shepherd Survey.

In Rusk County, Kirby Petroleum Company, Houston, was granted a permit to drill J. Williams 5 (65-ac), 703 feet southeast of No. 1, T. J. Martin Survey. A. P. Cary, Tyler, was granted a permit to drill R. Redwine 2 (20-ac), 275 feet east of center of west line of J. Ximinez Survey. Harwell & Tilley, Inc., Tyler, were granted a permit to drill Henson Heirs 1 (20-ac), 370 feet from west and 315 feet from south line of J. Ximinez Survey. S. K. Vierson, Okmulgee, Oklahoma, was granted a permit to drill A. Givens 2 (12½-ac), 175 feet from north and 163 feet from west line of R. W. Smith Survey. S. Y. Dorfman, Longview, was granted a permit to drill C. E. Christian 4 (26-ac), 330 feet from south and east lines of R. W. Smith Survey. Humble Oil &

Refining Company, Houston, was granted permits to drill (amended location) S. S. Laird B 36 (569-ac) 673 feet southwest of No. 26, M. Van Winle Survey; H. Smith 2 (100-ac), 330 feet from south and west lines of T. J. Martin Survey; (Amended location) A. D. Blackwell A 20 (325-ac), 330 feet from north and 1012 feet from east line of F. Cordova Survey; (Amended location) I. W. Wooley 16 (201-ac), 478 feet from east and 1088 feet from south line of F. Cordova Survey; (Amended location) S. A. Plowman A 18 (228-ac), 943 feet from east and 1115 feet from south line of F. Cordova Survey; (Amended location) L. D. Crim 78 (907-ac), 740 feet southwest of No. 82, E. G. Sevier Survey; L. D. Crim 87 (907-ac), 660 feet southwest of No. 70, E. G. Sevier Survey; I. Holt C 9 (99-ac), 471 feet from north and 900 feet from east line of W. H. Bears Survey. Gulf Production Company, Houston, was granted permits to drill H. Baton 2 (56-ac), 660 feet southeast of No. 1, M. Cogswell Survey; O. R. Baton, 3 (56-ac), 330 feet from south and west lines of M. Cogswell Survey; C. E. Christian C 15 (277-ac), 1262 feet from east and 412 feet from north line of W. W. Simms Survey; W. C. Sexton 8 (165-ac), 1424 feet from east and 600 feet from south line of M. McCabe Survey. Mid-Kansas Oil & Gas Company, Shreveport, La., was granted permits to drill J. F. Mason 10 (103-ac), 330 feet from east and 200 feet from south line of J. B. Cadena Survey; J. Lunsford 6 (70-ac), 200 feet from north and 330 feet from east line of J. B. Cadena Survey.

In Refugio County, United Production Company, Houston, was granted a permit to drill M. F. Lambert A1, (610-ac), 666 feet from north and 822 feet from west line of Hews & Brown Survey.

In Starr County, Columbia Realty Company, Harlingen, was granted a permit to drill Kelsey-Bass 2 (40-ac), 570 feet from north and 150 feet from east line of Section 6, Porcion 75-76-77.

In Tyler County, Republic Production Company, Houston, was granted a permit to drill Kirby 1 (144-ac), 1440 feet from west and 467 feet from south line of E. Thompson Survey.

In Upshur County, Lester & Duffield, Dallas, were granted a permit to drill L. Graves 4 (80-ac), 330 feet from west and 507 feet from south line of M. Irwin Survey. F. W. Merrick, Inc., Ardmore, Oklahoma, was granted a permit to drill W. R. Nicholson 6 (96-ac), 330 feet from north and west lines of M. Mann Survey. Shell Petroleum Corporation, Dallas, was granted a permit to drill J. F. Phillips 5 (95-ac), 330 feet from north and 997 feet from east line of J. M. Pineda Survey. Magnolia Petroleum Company, Dallas, was granted a permit to drill N. W. Blackwell 8 (93-ac), 802 feet from north and 330 feet from east line of H. H. Edwards Survey.

In Webb County, Magnolia Petroleum Company, Dallas, was granted a permit to drill J. M. Garcia 3 (3560-ac), 300 feet south of No. 2, No. 1100 Survey.

In Wilson County, Sexton Petroleum Company, San Antonio, was granted a permit to drill J. Gutzeit 1 (1032-ac), 150 feet from north and west lines of Block 4, F. Flores Survey No. 18.

In Ward County, Gulf Production Company, Fort Worth, was granted a permit to drill Hutchings 16 (370-ac), 1120 feet from north and 1650 feet from west line of Section 5, Block F, G&MM B&A Survey. Penn Oil Company, Dallas, was granted a permit to drill J. F. York 1 (40-ac), 2310 feet from northwest and southwest lines of Section 10, Block 34, H&TC Survey.

In Young County, T. B. Owens, Fort Worth, was granted a permit to drill G. Stewart 1, 775 feet from east and 1511 feet from south line of 3302 TE&L Survey. Cable Oil Company, Wichita Falls, was granted a permit to drill S. E. Snider 28 (380-ac), 1800 feet from east and 800 feet from south line of R. Wilson Survey. Perkins & Cullum, Wichita Falls, were granted a permit to drill G. R. Lemmond 9 (110-ac) 2720 feet from north and 450 feet from east line of Section 1, BBB&C Survey. Iron Mountain Oil Company, Fort Worth, was granted a permit to drill E. P. Tatum 18 (185-ac), 150 feet from north and 1609 feet from west line 1908 TE&L Survey. Worth Oil Company, Fort Worth, was granted a permit to drill G. G. Garrett 5C (160-ac), 770 feet from north and 800 feet from east line of No. 12 YCSL Survey. W. F. Dolenger, Loving, was granted a permit to drill G. E. Boyle 1 (40-ac), 840 feet from east and 150 feet from north line northwest quarter of Block 1, BS&F Survey. S. H. Simmons, Loving, was granted a permit to drill W. A. Couch 1 (400-ac), southeast corner of S. Sallee Survey. King Royalty Company, Wichita Falls, was granted a permit to drill J. F. Larimore 46 (164-ac), 1200 feet from west and 430 feet from north line of 2246 TE&L Survey. D. M. Knox, Graham, was granted a permit to drill A. A. Burkett 2 (70-ac), 200 feet from east and 600 feet from south line of 3412 TE&L Survey. Wooten & Reed, Graham, were granted a permit to drill F. M. Hinson 3 (200-ac), 1050 feet from south and 1750 feet from west line of 1448 TE&L Survey.

In Zapata County, O. W. Killam, Laredo, was granted a permit to drill A. M. Bruni 2 (2560-ac), 650 feet from east and 620 feet from south line of Block 43, Borrego Survey.

Humble Opens Serpentine Field on Balcones Fault

San Antonio, Texas.—A new Serpentine field on the Balcones fault, which gives promise of being of major importance, was definitely opened by Humble Oil & Refining Company February 15. It is the Annie Hassler 1, Bastrop County, which started off at the rate of 65 barrels an hour through one-inch choke, but was cut to 7½ barrels an hour through one-eighth choke February 16.

The company definitely announced one location in the area, and likely will drill several others immediately.

The well topped the serpentine at 2468 feet and went to a total depth of 2577 feet.

It is 750 feet from the west line and 330 feet from the south line of a 135-acre tract in the Wolfenberger Survey, eight miles southwest of the town of Hilbig, after which the field will be named. It is two miles northeast of Parson & Mayfield's Serpentine well completed last year as a small producer. This was Carroll 1, which produced from 2376 feet.

Humble Oil & Refining Company's newest well is Betty White 1, located 1650 feet south by 29 degrees west with the westerly northwest corner and 1090 feet south by 61 degrees east from the west line of the tract. It is about two and one-half miles northeast of the Hassler well. The derrick is being erected.

Several other operators hold close in acreage, so additional work might be expected immediately.

The performance of other Serpentine fields through this territory with their excellent recovery running into the millions of barrels will certainly through a bright spot on the Bastrop County district.

Gas Well Is Completed East of Escobas Field

San Antonio, Texas.—S. R. & C. Oil Company's M. Trevino 1-G, 1½ miles east of the Escobas field, Zapata County, was brought in for an initial flow estimated at more than 40,000,000 cubic feet of dry gas and showing a rock pressure of 750 pounds.

It connects up the gas area between the Villa field and the other gassers on the Cuellar ranch.

Camp Starts Important Wildcat in Nueces County

San Antonio, Texas.—An important wildcat test is being started in Nueces County by John F. Camp. It is King 1, located 150 feet from the north and west lines of the east half of Section 29 of the Richard King lands, about a half-mile east of Stanolind and Camp's King 2, and 1½ miles southeast of the same operators' King 1, both large gassers.

Stanolind Oil & Gas Company's King 1, Section 23, northwest corner, elevation 133, Ground, made a 40,000,000 cubic foot gasser from 3893-99 feet, showing 1300 pounds on tubing and 1100 pounds on casing through one-half inch chokes. The second well, located 660 feet south and east lines Section 30, was completed at 4010-30 feet for about the same size.

In the Saxet field, same county, two wells were in process of completion. Houston Oil Company's McGregor 2, Survey 311, had the sand at 4860-76 feet and was preparing to swab, while Violet Oil Company's McGregor-Belk 2 had the sand at 4871-74 feet, tested five fourbles of oil and is now waiting on cement.

Attempt Made to Prove Third Sand in Keeran

San Antonio, Texas.—Union Oil Company of Nevada was attempting to prove up a third producing sand in the Keeran field, Victoria County, late in the week. Plugs had been drilled and work of completion was underway on Keeran 2, M. de Leon Survey, in a sand at 5493-5507 feet. On a drill stem test it showed a heavy gas pressure and some gasoline. The well was drilled ahead to 6609 feet, but plugged back.

Gulf Production Company et al's Keeran 3, same survey, was below 6900 feet.

The present producing horizons in the field are at 5182-91 feet and 5831-41 feet, where one well is producing from each sand.

May Modify Saxet Field Gas-Oil Ratio Ruling

Houston, Texas.—An order of the Texas Railroad Commission of Texas modifying the gas-oil ratio requirement in the Saxet field, Nueces County, is anticipated following hearing here February 14. R. D. Parker, chief supervisor of the oil and gas division of the commission, conducted the hearing. W. F. Knode, commission engineer, and Frank Fouch, deputy supervisor at Corpus Christi, were in attendance. F. T. Burgess, superintendent for Gulf Coast Oil Company, testified that the required 2000 cubic feet per barrel of fluid was too low and suggested 5000 cubic feet as the rule. He also objected to the meter requirement and said that they had not been installed on his company's wells, and said that the tubing requirement also was not necessary in the field.

E. V. Foran, natural gas and petroleum engineer of Fort Worth, who made an investigation of the field at the instance of Southern Alkali Corporation, presented data on six wells in the field, three of which were under and three far in excess of the required gas ratio. He held the opinion that oil can be produced from the field without excessive gas, that tubing and meters are reasonable requirements. Other witnesses testified that market for the gas is limited.

Webb, Bexar, San Patricio Counties Holding Interest

San Antonio, Texas.—Interesting wildcats in Webb, Bexar and San Patricio Counties give promise of establishing new producing sands or widening present producing areas.

In Aransas County, F. E. Kistler, Trustee, is drilling McCampbell 1, McCampbell Ranch lands, Block 58, at 4708 feet.

Jacob, Buzzini & Pickett are making repairs to rig on W. J. Roundtree 1, Section 1, J. Poitevent Survey, Atascosa County. The well is down 880 feet. Stieren & Pickett are coring at 920 in Hurt & Tarrt 1, James Wilkinson Survey No. 144.

Gant & Teas are preparing to resume drilling in Mikulec 1, William Barton Survey, Bastrop County, which has been shut down at 1340 feet. Humble Oil & Refining Company is drilling in Annie Hassler 1, Wolfenberger Survey, at 2577 feet; has located Betty White 1, 2½ miles northeast of the Hassler 1, and is making preparations to drill additional wells.

Pettus Oil & Gas Company's Mauldin 2 is coring for the sand around 3900 feet. It is in the G. A. Kerr Survey, Bee County. Tabor, O'Neill and Howeth's J. P. Harris 1, Block 13, Section 13, has plugged back from 4322 feet and is perforating casing at 4110-30 feet. The Texas Company is preparing to start up on D. W. Cox 2, Section 2.

Bexar County

Bexar County has a number of operations. C. J. Albertson's Mrs. C. Hoch Heirs 1, County Block 5196, Baerera Survey, is still gassing from 528 feet, William V. Ballard has not landed casing yet in S. A. Land & Development Company 1, I. Perez Survey; it is showing gas at 1017 feet. R. A. Bolling's J. J. & M. M. Appelt 1, M. Urriegas Survey, had a cave in and lost cable and tools at 224 feet. E. R. Byrd is drilling W. H. Russell 1, Survey 6, at a shallow depth. Chiquita Oil Company is coring A. C. Hunter 4, Josephine Martinez Survey, at 1400 feet. Eckert & Sons have installed pump in A. Brehm 2, L. Boquar Survey, at 711 feet, and have located their A. Brehm 3, a location north. F. H. Etheridge is moving in on Bilhartz 1, R. Rolen Survey No. 48. M. L. Howard has plugged J. M. Watson 1, B. Martinez Survey No. 16, from 2535 feet to 2505 feet, and is cleaning out to test. C. J. LeCompte is making slow progress in Diaz 1, Diaz Farm Lots Nos. 1 & 2, down only 80 feet. Motes Campbell Company's R. T. Pruitt 1, McCullough Survey, is drilling at 260 feet. D. C. Pegg has installed pump in Ella Gembler et al 2, Survey 51, which has the sand at 633-50 feet, and has located Ella Gembler 3, one location north. He is moving on. Leonard Ray is down 250 feet in Tom Dillon 1, M. de Luna Survey, at 250 feet. C. W. Richards is spudding J. Halbardier 5, J. M. Perez Survey. Sun Rise Oil Company's R. Uecker 1, J. M. Perez Survey, is a location. Swearingen Oil Company's W. H. Russell 1, Section 6, is drilling around 765 feet.

In Caldwell County, Fred Adams and Lysles are moving onto Roberts 1, John Neill Survey. E. R. Thomas is testing O. S. Alexander 1, William Spillers Survey. It has the Edwards lime at 2300 feet.

Byrd Oil Corporation has spudded in Wright 1-A, Section 101, Duval County. Central Producers, Inc., Johnson & Tuck 6, Section 42, is drilling at 2000 feet. H. H. Coffield's H. Wendt 5, Section 43, is spudding. Hamill & Hamill are drilling C. W. Hahl 6, Section 42, while locations have been made by Highland Oil Company for Lundvall 7 and 8, same survey. Humble Oil & Refining Company has a location for Paul White 11, Section 249. Magnolia Petroleum Company is starting J. V. Allen 5 and 6, Section 42, Duval Ranch 1, Section 209, is a derrick; B. White 4, Section 44, is spudding. Navarro Oil Company is coring for the sand in C. W. Hahl 1, Section 360, while C. W. Hahl 2, same section, is a location. Reynosa Oil Company's C. W. Hahl 5, Section 42, is rigging up. S. R. & C. Oil Company's Hagist 1, Tract 5, Section 267, is drilling

at 700 feet. Wilkins Seacord et al are moving on Lundell 2, Section 48. Hester Brothers' Fee 1, Section 47, is a location. Sarnosa Oil Company's Weil 6, Section 130, is a location. Shasta Oil Company's W. R. Peters 2, Section 176, is drilling at 700 feet. Stanley Smith has spudded Manuel Oliverea 1, Section 80. W. B. Stewart is drilling Duval Ranch 2, Section 362 at 275 feet. The Texas Company's Duval Ranch Company 3-A, Section 574, is down 2670 feet. Windsor Oil Company's L. L. Cummings 3, Section 44, is drilling in after setting casing at 2250 feet.

James E. Greenlee's Burns 1, Section 123, is rigging up. It is in Frio County.

John F. Camp's Sue Denman 3, William Arrington Survey, Guadalupe County, is drilling at 3467 feet in Edwards lime. W. A. Scrutchin is drilling around 500 feet in S. J. Lowman 1, Block 1, Section 1, S. Barnes Survey.

In Hidalgo County, Carl & Johnston's Doughty 1, Tract 11, Block 5, Carl & Johnston subdivision of Los Indios Grant, is preparing to spud.

Jim Wells County has two important tests. Humble Oil & Refining Company's Fuhrman 1, P. Sacks Survey, is drilling at 5105 feet. Magnolia Petroleum Company is building derrick for A. A. Seeligson 2, V. Ganales Survey No. 218.

W. R. Campbell is drilling at 1200 feet in E. G. Gilbert 1, C. Martinez Survey, Karnes County.

Harry Clark's Kivlin 1, Section 39, Block 8, Kleberg County, is a location. Ted Harrison et al's Dennett 1, Lot 7, Section 38, has reached 2797 feet and is shut down.

Paton Brothers' C. A. Turner 1-B, D. Hudson Survey, Lee County, is drilling below 2800 feet, while Sayre Oil Company's Rister 1 is a location.

Humble Oil & Refining Company is drilling at 410 feet in A. West 1, T. Hammond Survey, Live Oak County. Live Oak Petroleum Company's Jim Harper 2, center Tract 40, J. Poitevent Survey, is drilling below 900 feet.

B. R. Garrett et al's J. D. Beck 1, Survey 44, Maverick County, is drilling at 275 feet. M. S. Holiday is moving on State Bank & Trust Company 1, Section 40. C. L. Mahoney is resuming drilling in Kifuri 1, Poindexter and Burns Survey No. 31, now down 400 feet.

Gant and Teas set surface casing in Hagist 1, center Section 24, A. Lichtenberger Survey, McMullen County. Jaqua & Crow's Hagist 1, Survey 467, is drilling at 350 feet. Homer T. Lamb's J. T. Brown 1, M. Hely Survey, is down 900 feet. Lefevre & Spice have spudded Jacob 1, Section 53. Longhorn Oil Company's C. T. Lark 2-A, Block 14, E. W. B. Scrugham Survey, is drilling. Greenwood & Calvert are down more than 100 feet in Z. A. Booth 1, Section 21, John Garner Survey. C. C. Shumway is drilling Shiner 1, Block 45, New Shumway Survey, at 1200 feet. S. R. C. Oil Company's La Chusa 1, Section 47, is drilling below surface casing. Tarver & Nance are drilling in J. Dickinson 1, Section 45, which has casing set at 620 feet.

In Nueces County, Holiday et al's F. J. Smith 1, Shepard Farm Lots No. 35, is coring a water sand at 3845 feet. Houston Oil Company is building Christmas tree over E. McGregor 2, Section 311, at 4876 feet. Shasta Oil Company's F. Quiroa 1, Section 311, is drilling at 4145 feet. Texas Coast Oil Company's Clark-Morgan 1, Section 405, is drilling at 4015 feet. Oso Drillers, Inc., Roark 3, is drilling at 4886 feet. Violet Oil Company's McGregor Belk 2, tested five fourbles of oil at 4871-74 feet and set casing.

Gulf Production Company is near 6900 feet in O'Conner 2, CEPI&M Survey, Refugio County. Humble Oil & Refining Company's O'Conner 3, F. Rios Survey, is drilling at 6285 feet. Edwin M. Jones is preparing to drill plugs in J. Mitchell 4, Lease 55, Refugio Survey, which has casing set top of sand at 6361 feet. George E. Smith is building derrick on O'Brien 1, Winfield Survey.

Saxet Oil Company's F. S. Rachal 19, J. N. Seguin Survey, San Patricio County, is testing a sand at 4939-39 feet. George W. Scruggs is drilling at 600 feet in N. Collins 1, Block 36, McGloin Survey.

In Victoria County, Gulf Production Company is coring Keeran 3, M. de Leon Survey. It is down 6832 feet. Wuintana Petroleum Company is drilling about 5000 feet in S. W. McCormick 1, Survey A 314-A. Stonleigh Petroleum Company is spudding E. B. Terrell 1, R. Manchola Survey. The Texas Company's McFadden 6, A. J. Gary Survey, also is spudding. Union Oil Company is preparing to drill plugs in C. Keeran 2, M. de Leon Survey, to test a sand at 5493-5507 feet.

L. M. Kaiser is drilling in Villareal 1, Section 1099, Block 2, Webb County. It has the sand at 2194-2202 feet. Nueces Drilling Company's Puig 1, Block 12, Albercas Grant, is drilling at 582 feet. G. B. Parr's Gates 1, Block 3, Section 272, is a big gasser at 2128-42 feet, but may be deepened a little. H. T. Smith et al's Lloyd 1, Section 23, Block 2, is coring at 2200 feet. Whisenant & Trenchard are below 600 feet in Duval County Ranch Company 1, Block 17, Section 101. Earl Calloway's Gates 1, Section 14, is rigging up.

Garrett, Lefevre & Spice are drilling M. Garza 1, Block 53, Las Comitas Grant, Zapata County, at 300 feet.

5700 Barrels Flush Oil Is Contributed in South Texas

San Antonio, Texas. — New fields were discovered in South Texas during the week. Following are the area's completions:

Company, Well and Location	Initial Production Bbls.	Depth
Bastrop County—		
Humble O&R Co., Annie Hassler 1, Wolfenberger sur	1560	2577
Bexar County—		
Eckert & Son, A. Brehm 2, I. Boquar sur	10	711
D. C. Pegg, Ella Gembler 2, Sur. No. 51	10	650
Scruggs & Hill, F. Schell 1, Sec. 234	*	836
Duval County—		
Brogan et al, C. W. Miller 1, Sec. 55	*	2324
Magnolia Pet. Co., Hahl Weiderker 1, Sec. 45	120	2240
Navarro Oil Co., C. W. Hahl 1, Sec. 360	900	2290
Reynosa Oil Co., C. W. Hahl 4, Sec. 42	1080	2293
Wilkins Seacord, E. C. Lundell 1, Sec. 60	*	2352
The Texas Company, D. J. Freer 3, Sec. 45	216	2261
D. J. Freer 4, Sec. 45	264	2261
M. B. Johnson 6, Sec. 42	¶10	2255
Windsor Oil Co., L. L. Cummings 5, Sec. 44	1500	2295
Gonzales County—		
A. King, Ramzinski 1, Gonzales sur.	*	553
Milam County—		
Marvel Wells, Inc., Fee 1, J. J. Liendo sur	*	2435
Starr County—		
Keck & Keane, Kelsey Bass 2, Sec. 6, Por. 75-6-7	*	1040
Travis County—		
Franklin et al's Reimers 1, Sur. 35	*	312
Fritz Fuchs, Wm. Smith 2, L. Kimbro sur	*	760
Webb County—		
O. W. Killam, Bruni 6, Sec. 18, Borrego Grant	*	2238
Newton Drlg. Co., A. Garcia 1, Sur. 52	*	2345
G. B. Parr et al, Gates et al 1, Blk. 3, Sec. 272	¶20	2142
Reward Oil Co., M. Rosenburg 2, Blk. 15, Sec. 271	40	2203
Zapata County—		
Donohoo et al, Garcia 1-A, Blk 7, Share A, Charco Redondo grant	*	1143
Phelps, Teagel, Leyendecker, Martinez 1, Blk. 15, S. T. Phelps sub of Villa Grant	*	2007
S. R. & C. Oil Co., M. Trevino 1-G, Blk. 5, Sec. 60	¶40	1695

*Failure. †Junked. ¶Million cu. ft. gas.

Independents Move Offices From Fort Worth to Austin

Fort Worth, Texas. — Removal of headquarters of the Independent Petroleum Association of Texas from Fort Worth to Austin was authorized by the board of directors here February 14 as a preliminary towards enlarging the activities of the organization. Resignation of Claude C. Wild, executive vice president, was accepted by the board, and the vacancy was promptly filled by the selection of Bailey W. Hardy, former Representative from Breckenridge who was chairman of the oil and gas committee of the House during his term of office. Hardy will also be general counsel for the association.

Opposition to any movement having as its purpose to divert oil and gas proration and conservation activities of the state from the railroad commission to an appointive body was recorded in a resolution prepared by the board of directors, who also renewed their pledge to stand behind the commission. It was pointed out that the independent branch of the oil industry will be best served when proration enforcement rests in the hands of state officials elected by the people. A resolution carrying the unanimous endorsement of the directors present condemned the market demand law recently enacted by the legislature, and every effort will be made to have the act repealed.

The selection of Hardy and transfer of the office to the state capital will permit closer observation of matters affecting the independent branch of the industry.

Rabb Ridge Field Extended 2200 Feet

Houston.—Rabb Ridge field's commercial production was extended 2200 feet north this week by Gulf Production Company's Hamerstream 1, located 317 feet north and 242 feet east of the southeast of the Whitmore 80-acre tract. The well flowed initially 55 barrels per hour from 5398 feet and had a tubing pressure of 550 pounds.

Including the above, there were four completions at Rabb Ridge this week. Their combined initial production amounted to 5668 barrels, or an average of 1422 barrels per well. All production was flowed through three eighths-inch chokes.

San Antonio, Texas.—Saxet Oil Company is testing a sand at 4936-39 feet in F. S. Rachal 19 in the Saxet field, San Patricio County. Several other wells found sands at this level, but failed to make producers. It is in the J. N. Seguin Survey, 1237 feet northwest of No. 17.

Strake Extends Conroe Field 3000 Feet West

Houston.—G. W. Strake, discoverer of Conroe oil field, this week extended the field 3000 feet west by completion of Keystone Mills 1 at 5121 feet for an estimated initial production of 1723 barrels per day through a half-inch choke, with 600 pounds tubing pressure.

Keystone Mills 1 is located 466 feet west of the west line of Alpha Petroleum Corporation's 200-acre tract in the Lemuel Smith Survey, and 1200 feet south of the northwest corner of the 200-acre tract along the west line thereof.

Another outpost well being closely watched is that of M. J. Munn in Lot 114 of the Clark Beach Survey. It is 9000 feet east of production, but its chances of extending the field are not considered as good at 5050 feet, where it is circulating, as were those of the Strake well.

In addition to new producers shown in the completions column for Conroe, three later completions added 4795 barrels to the 36,852 barrels of the 19 recorded, bringing the field's flush for the week up to 41,647 barrels, an average of 1940 barrels per well.

An interesting completion of the week was the gas well brought in by Feltex Oil Company and Kirby Petroleum Company on the Bertrand lease in the G. W. Wagers Survey. At 5098 feet the well yielded an estimated 12 million cubic feet of gas and 47 barrels of 58 gravity oil. Bertrand 1 is in the southern part of the field.

Late Friday there were enough wells standing cemented on the sand at Conroe to assure completion next week of at least 15 producers, indicating an addition of about 30,000 barrels flush production.

Rapid Rate of Completions In Gulf Coast Continues

Houston.—Completions in the Texas Gulf Coast this week more than sustain the rapid rate at which flush production has been added in the region since the early part of December, 1932, due primarily to continued concentration of drilling in Conroe field.

This week 25 completions were recorded. Of these 22 were oil wells, one was a gas well, and two were abandoned wildcats. Initial production from the 22 producers amounted to 40,212 barrels, of which 36,852 barrels represented 19 wells completed at Conroe.

As to future completion rates in the Gulf Coast, the indicated allowable increase for Conroe field, resulting from testimony presented in Houston this week, certainly will not have a tendency to slow up drilling in the event the Texas Railroad Commission authorizes a 12,000 or 15,000 barrel increase for that area.

A detailed list of completions for the week follows:

Company, Well and Location	Initial Production Bbls.	Depth
Conroe Field—		
Amerada Pet. Co., So. Texas Dev. Co. 2	2328	5121
Feltex Oil Co. & Kirby Pet. Corp., J. T. Bertrand 1	¶12	5098
Gem Oil Co., E. Moorehead 1	5640	5110
Harrison & Abercrombie, O. L. Alexander 5	2208	5092
Houston Oil Co. & Tide Water Oil Co., R. L. Cartwright 5	276	5172
Joe Hamman 3	1128	5106
Joe Hamman 4	384	5155
W. N. Hooper, Jr. 2	576	5118
Humble Oil & Ref. Co., Madeley 10	2040	5153
Madeley 14	1728	5173
W. P. McComb 1	1920	5141
H. N. Moore 5	2784	5130
H. N. Moore 7	2424	5140
H. N. Moore 14	2400	5126
Navarro Oil Co., Perry Heirs 1	1800	5120
Skelly Oil Co., John Rhoden 1	672	5099
The Texas Co., W. S. Rhodes 3	1320	5126
W. S. Rhodes 6	2136	5112
Tide Water Oil Co., & G. W. Strake, Lewis Est. 10	2400	5143
Lewis Est. 11	2688	5143
Manvel Field—		
The Texas Co., Belcher 4, H. N. Little sur.	600	3890
Sunshine (Polk County)—		
W. H. Freeman, Freeman 1, Augustine Viesca sur.	*	3374
Rabb Ridge Field—		
Humble Oil & Ref. Co. & Gulf Prod. Co., Lockwood & Sharp B-11	1320	5291
Gulf Prod. Co., Mary Gubbels 1-A	1440	5325
Tyler County—		
Republic Prod. Co. & Houston Oil Co., Kirby-McShane 1, Spurger area, BBB&C RR Sur. No. 17	*	5347

*Failure. †Junked. ¶Million cu. ft. gas.

Llano Company Abandons Vernon Parish Wildcat

Houston.—Minerals Division of Llano Company has given up efforts to develop production two miles southwest of Leesville, which is in LaFourche Parish. The company this week abandoned Llano Del Rio 1, Section 34-2n-9w, Vernon Parish, at 3637 feet in sand and shale. Elevation of the test was 230 feet. No showings were reported in the wildcat.

Deering Discovery May Revive Work at Hockley

Houston.—The next fortnight may see startling developments in the old Hockley field of Harris County, where development had practically reached a standstill until John Deering blocked about a section of land and started drilling on the dome late in 1932.

This week his Warren 2, located 100 feet southwest of Warren 1, stopped drilling in oil sand at 2427 feet after a drill stem test of sand at 2419-2427 feet showed 1800 feet of oil in the hole.

Earlier operators at Hockley had passed up this sand with a notation in the log, "sand showing slight trace of oil."

Commission Asked to Raise Conroe Allowable to 35,000

Houston, Texas.—Hearing here February 14 on the Conroe field presented testimony to the Texas Railroad Commission under which it was asked to fix the allowable for the field at 35,000 barrels per day with a monthly increase of 10,000 barrels as development progresses; to make permanent the order requiring one well to each 20 acres, and to modify its rules on casing and blow-out preventers. At the same time, three purchasers in the field made nominations for 40,000 barrels daily.

The hearing was before R. D. Parker, chief supervisor of the oil and gas division, with W. F. Knode, chief engineer, and Goodson Rieger, local supervisor, in attendance. Representatives of Humble Oil & Refining Company, questioned by Hines Baker, attorney for that company, furnished the data on drilling and recovery practice, although other companies interested in the field were represented and in general corroborated, or did not object to what was offered.

As is custom, the commission took the several matters under advisement, decision to be handed down later. No member of the commission came to Houston to conduct the hearing for the reason that their presence in Austin is required by the legislative investigation of the commission now under way.

F. W. Micheaux, resident geologist for Humble Oil & Refining Company at Conroe, qualified as a witness through having held that position since his company's entry into the field when only three wells had been drilled, two of them having been carried deeper under his direction. From this familiarity with the geology of the area, he presented large scale cross sections of the formations below the Cockfield. He described the upper geological markers as the Jackson, Fayette, McElroy, Cabell, Claiborne and Cockfield, the latter being approximately 150 feet above the Conroe sand which contains the primary production. Separating the two producing sands is a solid shale body.

Above the oil sands he enumerated six gas sands—at 1200, 1700, 2500, 2600, 3300 and 3500 feet—these in addition to the gas which overlies the oil in the two oil producing sands.

The east-west cross section showed a regular domal formation with the two oil sands unbroken except for streaks of shale in the Conroe sand. The north-south section, however, shows pronounced faulted conditions, but this faulting was shown to not completely break the main Conroe sand which was indicated as having a thickness of 56 feet, with a gas cap above and water below. The maps and the testimony tended to show that the Conroe sand is a continuous reservoir and that all wells affect gas pressure and water intrusion throughout the field.

Micheaux gave the area of the Conroe sand as 13,000 acres, sand thickness of 56 feet and porosity of 26 per cent. He said that the upper production—Cockfield or Keystone sand, is productive of oil over an area of 1200 acres and has a thickness of 15 feet. No water has been found in the upper sand but it is presumed that this deposit is water-driven the same as the Conroe sand.

W. W. Scott, chief petroleum engineer for Humble Oil & Refining Company, continued discussion of underground conditions, leading up to the recommendation that for the present the allowable of the field be set at 35,000 barrels per day with a monthly increase of 10,000 barrels per day each month until the contemplated 650 wells are completed under the present program by the end of 1933, when the field should have a maximum output of 100,000 barrels per day. Further, he insisted that the present commission order requiring spacing one well to 20 acres be continued and rigidly adhered to. He told of a meeting of engineers of the principal operators in the field, at which 85 per cent of the area was represented, and intimated that he was speaking for that group.

Scott, in support of the spacing program, showed that with high porosity (26 per cent) and permeability of the sand, high gravity (39 A.P.I.) and low viscosity (34 seconds, Saybolt), spacing at 930 feet is more than ample for recovery of the oil in the sand which it is estimated will be produced, total recovery of the Conroe sand being estimated at 509,600,000 barrels to which is added 9,740,000 barrels from the upper sand. These totals are based on 35 per cent recovery from Conroe and 25 per cent from Keystone. He showed that to accomplish this percentage of recovery withdrawal should be uniform and not rapid, casing to be so set as to preserve the pressure in the gas cap above while the water table is advanced uniformly below. It would be waste to allow the pressure in the gas cap to be dissipated and thus permit oil to enter the gas sand. Proposal of his recommendation of proper withdrawal was compared with other fields in the Gulf Coast where Humble Oil & Refining Company is the lone operator and where these conditions are maintained with apparent profitable success.

Previous testimony having shown that the numerous gas sands made close spacing at Conroe a fire hazard, J. S. Abercrombie was put on the stand to detail his personal experience while his company was drilling an offset to the wells recently fired in the field. His opinion was that closer than 20-acre spacing is dangerous both to life and property.

Casing Rules

Petition was made by Scott on behalf of a group of operators, that the late order of the commission on casing and blow-out preventers be modified. As now written, the order requires 350 feet of surface casing and another string to 1400 feet, to withstand 1000 pounds pressure. Change suggested is that casing be set and cemented to top at 1200 feet and at least 20 feet in a shale at that depth. Present 1000-pound test to reduce to 500 pounds, and failure to condemn cement job rather than casing. Surface casing to be required only in vicinity of gas blow-outs, the casing program proposed to be submitted with application for drilling permit. Recommended that oil string withstand 1000 pounds rather than present required 2000 pounds.

In the matter of blow-out preventers, it was pointed out that the order requires hydraulic control, whereas it should permit use of mechanical equipment of approved efficiency. Also requested revision of time required for cementing.

E. E. Fogelson, South Gulf Oil Corporation, filed an exhibit asking that in view of it being a separate sand and not part of the Conroe field as now prorated, the Cockfield sand be designated

as a separate formation not to be prorated until it has been developed to 10,000 barrels daily.

Make Nominations

The proposed new allowable of 35,000 barrels daily is an increase from 18,500 barrels daily at Conroe. On hearing on market demand, Humble Oil & Refining Company bespoke 15,000 barrels daily, The Texas Company 10,000 barrels and Tidal Oil Company 15,000 barrels daily, the latter requesting that if such is possible it be allowed an additional 150,000 barrels to make up shortage that it did not receive under its previous nomination.

Important Developments in Several Coastal Wildcats

Houston.—With partial narrowing down of exploratory efforts in certain likely wildcat areas and with projection of additional tests in those areas still demanding additional work, it is not improbable that the Texas Gulf Coast, already possessed of several undeveloped reserves, will contribute new reserves from wildcat discoveries before June 30.

The following delineation of wildcat activities in Texas Gulf Coast reveals those areas giving promise of production possibilities as indicated by showings of oil, gas, or hard formation in drilling tests.

Cranfill-Reynolds, newcomers among Austin County wildcatters, are waiting on surface casing cement to set in J. R. Lewis Estate 1, James Cummings Hacienda. Great Southern Drilling Company, having started operations in 1931 on F. Schovajsa 1, reported the well shut down in gray shale at about 3428 feet this week. The well has encountered no showings of commercial importance.

Brazoria and Colorado

In Brazoria County a number of wildcats are active. At Cedar Break, Danciger Oil Refining Company's W. S. Hunt 2 is a derrick in the W. Coirson Survey. It is 1050 feet south and a little west of Hunt 1, discovery well of the area which produced gas and distillate from 6782 feet. Rycade Oil Company and Amerada Petroleum Corporation's attempt to extend Stratton Ridge nearly a mile has not reached a significant depth, Seaburn 3 being in sand and rock at 1810 feet. Six miles southwest of Alvin, Brazoria County, Tri-Fin Oil Company's Moors 1, F. Moore Survey, is standing in gumbo and lime at 3391 feet.

Eagle Lake and Garwood hold the center of interest in Colorado County wildcatting. At the former, Fabriguze and Pool are rigging up on Lakeside Irrigation Company 1, Patrick Reel Survey. Humble Oil & Refining Company's John R. McLane 1, Garwood district, made two negative drill stem tests during the week: one at 2730-40 feet, and one at 2781-91 feet. McLane 1 is about two miles north by east of Coyle-Concord's Garwood discovery gas well. Plymouth Oil Company, holding about 4700 acres scattered around the Humble's Coyle-Concord block at Garwood, this week announced a location for F. L. Ream 1 in the northeast corner of Section 47, I&GN RR Survey.

John Deering and Benedum Trees Oil Company, testing Fresno Townsite district with Westenfield 1, have shut down the well as 6226 feet, having reported no shows. Another Fort Bend County wildcat, Lowrie & Young et al's Jackson Brown Estate 1 at Pilant Lake, was still in Miocene at 5448 feet, which is rather deep.

Hardin and Harris

In Galveston County, Humble Oil & Refining Company's Rosenkranz 1, originally bottomed at 7119 feet before a plug-back was necessary, is standing at 7101 feet. This wildcat is in the Sarah White Survey.

Houston Oil Company and Republic Production Company seem to have drawn another blank at Ariola dome, Hardin County, their Ariola Fee Y-1 listed as temporarily abandoned at 5948 feet. Y-1 has been listed similarly at 6400 feet. In the W. W. Young Survey, 1½ miles west of Sour Lake dome in Hardin County, Joe E. Proctor et al's J. R. Bevil 1 is slated for abandonment at 2685 feet.

Harris County wildcat activity centers on Mills Bennett's Kleppel 1, Wade H. March Survey in Hufsmith district. With a ground elevation of about 180 feet the well has gotten a Hockleyensis top at anywhere from plus 4620 to 4669 feet, according to four paleontological departments. In the same region, three miles east of Kleppel 1, Weatherall Oil Company has announced location for Cora V. Peden 1 as 1320 feet each way out of the northwest corner of the John Brock Survey. Derrick material is being moved in. John Deering's Warren 2, Hockley dome, has 1800 feet of oil in the hole at 2427 feet. The well is

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In Jefferson County, Carroll and Miller's Mashman 1, W. B. Dyches Survey, was reported drilling below 219 feet in gumbo. Coast Oil & Gas Company's Young 1, Joseph Grigsby Survey, was drilling below 3880 feet.

Matagorda and Montgomery

Cockburn Oil Corporation's Hawkins 5, Sheppards Mott, is moving in new boilers and engines after cementing back to 2150 feet from 5241 feet, where an exploded boiler caused loss of hole. Coombs et al's Wadsworth Ranch 1, across the property line from Cockburn's operation, drilled to 1100 feet and shut down, pending developments in the former. R. L. Sprinkle's Turner 1, located in the Van Vleck district of Matagorda County, stands partly rigged up.

Possibility to new production in the Buckeye district of Matagorda County looms as a result of United North & South Development Company's St. L. B. & M. R.R. No. 1 having gone into oil sand at 7792-7802 feet. Seven-inch casing is being set at 7755 feet.

Montgomery County wildcat activities this week were headed by abandonment of R. L. Sprinkle's Rohls 1, 10 miles southwest of Conroe field and in the H. Prosens Survey. The well quit in shale at 5105 feet. With an elevation of 206 feet, it topped the Hockleyensis at 4510 feet.

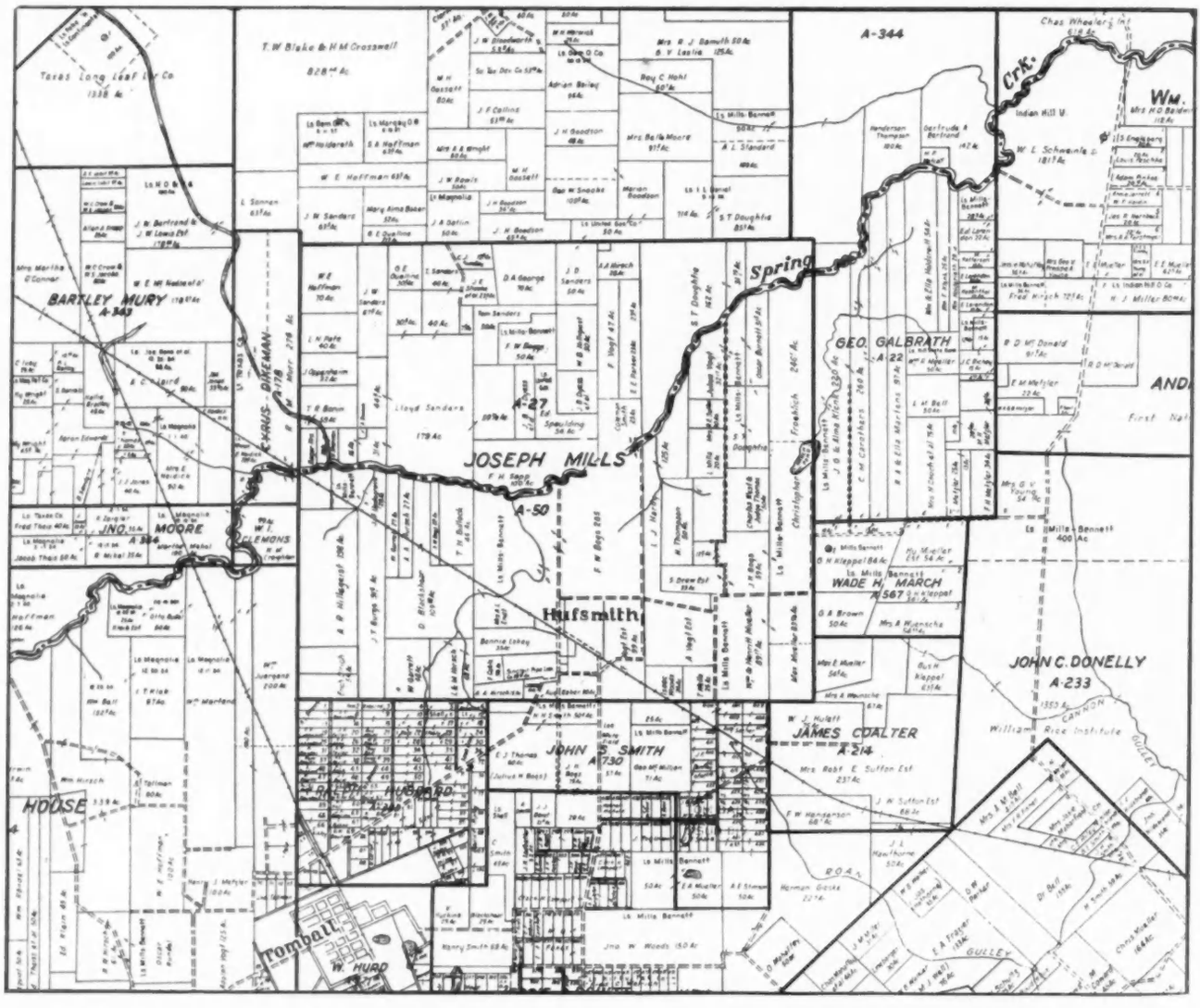
The status of other Montgomery County wildcats follows: C. J. Daniel and Hoppess' Flowers 1, W. Barker Survey, is shut down at 1624 feet in shale. A. H. Parsons' Drought 2, J. Kronkite Survey, is shut down at 3908 feet. Mound Creek Oil Company's John Sealey 1, Sealey Survey, was reported drilling slightly below 4000 feet.

There has been a resumption of drilling among Polk County wildcats. Joseph L. Anderson's E. I. Duke 1, Ace dome prospect 12 miles southeast of Livingston, is drilling below 4210 feet. Ace Oil Company's Martha Roberts 1, Ace prospect, Joaquin de Rumayor Survey, is in sandy shale at 5090 feet. Abercrombie and Harrison's Carter Lumber Company 1, Augustine Viesca Survey, was drilling in shale at 5068 feet. Roxie Oil Company's Reid 1, one mile north of Schwab's Carlton-Davis 1, was rigging up.

In San Jacinto County, Weaver et al's Delta Land and Timber Company 1, James Robertson Survey in the southern half of the county, was shut down at 4140 feet.

In Trinity County, C. M. Beckner et al's J. B. Gibson 1, William Beasley Survey, was abandoned at 1192 feet after a plug-back to 999 feet showed about 100,000 cubic feet of gas.

Tyler County's most important recent development in wildcats has been the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Chas. Wheeler's Int
618 Ac
Indian Hill Oil Co.
Mrs. H. O. Baden
112 Ac
W. L. Schwanke
181 Ac
Henderson Thompson
100 Ac
Gertrude A. Bertrand
142 Ac
Mrs. Bella Moore
917 Ac
Mrs. R. J. Bamuth
Mrs. O. V. Lasley
125 Ac
Roy C. Hohl
Adrian Bailey
Marion Goodson
Geo. W. Snooks
Mrs. A. A. Wright
Mary Alma Baker
S. T. Doughtie
851 Ac
Mrs. Ella Haldeman
Mrs. Ella Masters
Mrs. Fred Hirsch
725 Ac
H. J. Miller
Mrs. Geo. Bennett
Mrs. C. V. Young
54 Ac
Mrs. E. Mueller
Est. 54 Ac
Mrs. A. Wanscha
Bush Kleppel
631 Ac
Mrs. Robt. E. Sutton Est.
237 Ac
J. W. Sutton Est.
66 Ac
F. W. Hanserson
66 Ac
Herman Gocke
Mrs. A. A. Wolf
Mrs. Geo. Bennett
Mrs. Mueller
Mrs. Woods
150 Ac
Henry Smith
68 Ac
Mrs. Mueller
Est.
Mrs. Mueller
Est.
Mrs. Mueller
Est.

abandoning of Houston Oil Company and Republic Production Company's Kirby McShane 1 at 5347 feet. This test was situated three miles west of Sterne Fee 1, discovery well of the Spurger area, and in Section 17 of the B.B.B.&C. R.R. Survey. These operators have three other tests in the Spurger area of the county. Sam Jeffcoat 1, E. Thompson Survey A-34, is a derrick. Kirby Lumber Company 1 (E-1016) is rigging up in the E. Thompson Survey. Kirby Lumber Company 1 (E-1017), same survey, was drilling shale at 3525 feet.

In Wharton County, Heep Oil Corporation's Dayvault 1, south of Glenford and in the William Kincheloe Survey, is slated for abandonment at 5200 feet. Pure Oil Company's Stewart 1, Section 25, Morris Cummins Survey, logged hard sandy shale, lime and pyrite at 3919 feet. It is the more likely of the present shallow tests in Wharton County. Smith & McDannald's Mitchell 1, H.&T.C. R.R. Survey No. 8, Abstract 661, cored dark shale at 6596 feet. Steed Production Company's Lurker 1, Section 58, E.T. R.R. Survey, is temporarily abandoned at 5026 feet.

2140 Barrels From Three Coastal Louisiana Wells

Houston.—Louisiana Gulf Coast this week contributed 2140 barrels of flush production, considerably more initial production than that region has added any one week for quite a while. It came from three wells.

However, the best well initially of the lot, The Texas Company's Botney Bay 13, quit flowing after 30 hours and will have to be produced with gas.

Yount Lee Oil Company's State School Land 12 at Old Hackberry, Cameron Parish, was abandoned in salt at 4694 feet, having entered that formation at 3837 feet. An upper layer of salt was topped at 3316 feet and drilled through.

Company, Well and Location	Initial Production Bbls.	Depth
Cameron Meadows—		
Magnolia Petroleum Co., Cameron Meadows 3	400	5273
Lake Barre—		
The Texas Company, L. L. E. Lake Barre 4.....	740	3980
Old Hackberry—		
Yount Lee Oil Co., State School Land 12	*	4694
Port Barre—		
The Texas Company, Botney Bay 13 1000		3437
Vernon Parish—		
Minerals Division of Llano Co., Llano Del Rio 1, Sec. 34-2n-9w	*	3637

*Failure. †Junked. ¶Million cu. ft. gas.

Gueydan Again Features Coastal Louisiana Tests

Houston.—Gueydan, Vermilion Parish, Coastal Louisiana, again has furnished the highlight of wildcat activities for the region. Pure Oil Company's Mulvey Irrigation Company 2 having been in broken formation showing oil in strata from 4387 feet to 4574 feet.

Mulvey Irrigation Company 2, at a total depth of 4574 feet, is about 446 feet deeper than the discovery well of Gueydan, Alliance Trust Company 2, which was completed at 4029 feet. The drilling well has showed oil just above 4056 feet, had a sand showing oil at 4387-92 feet; a drill stem test at 4427 feet showed a little oil, salt water, gas and mud; another drill stem test at 4512 feet showed seven singles of mud in 10 minutes; another drill stem test showed 16 fourbles of mud and some gas at 4528 feet. The bottom of the hole is in a sand showing oil.

Mulvey Irrigation Company 3, located 600 feet north of Gueydan production, is a derrick in Section 34-11s-1w. Shell Petroleum Corporation's B. C. Hebert 1, Vermilion Parish, Section 10-15s-1e, is drilling below 3000 feet.

In Ascencion Parish, Darrow district, Rio Bravo Oil Company's Gamble Lumber Company 1 is waiting on cement to set at 4995 feet. This wildcat is 600 feet west of Community 1, discovery well of Darrow dome which produced 100 barrels an hour initialy from 4035 feet. The same operator's O'Neil 2, 1600 feet east of the discovery well, is drilling near 4000 feet.

M. M. Stokes et al's Pan American Life Insurance Company 1, Section 18-9n-10e, Concordia Parish, is drilling near 2000 feet.

In Iberville Parish, Shell Petroleum Corporation's Wilbert 6, White Castle dome, has shut down in salt at 5839. In the same parish, but at Choctaw dome, Standard Oil Company of Louisiana's Gay 3 was reported in shale at 4120 feet.

In Jefferson Davis Parish, B. D. Finley's Lognion 1, Section 22-10s-4w, was shut down at 1070 feet. In the Ronoak area of Jefferson Davis Parish, Humble Oil & Refining Company's Devilbiss 1, Section 14-9s-4w, was in sandy shale at 4168 feet.

At Iowa, Shell Petroleum Corporation's Fontenot 3 is nearing completion at 6966 feet. It had a sand showing oil at 6878 feet.

Cook Drilling Company's Delecroix Farms 1, Oliver prospect in St. Bernard Parish, was reported fishing for a stuck drill stem at 5130 feet. The stem stuck while reaming at 2370 feet.

Converse Still Holds Center Of Interest in North Louisiana

SHREVEPORT, La. — Developments in the shallow Converse field of Sabine Parish which has two producers again last week featured wildcat operations in North Louisiana which felt the effects of cold, rain and bad roads.

Between the two producers in the field Evans Brothers' Cranford 1, SE SE Section 20-9-13, was still being bailed during the week but had failed to show as much oil as expected and is not expected to make more than a small pumper at present total depth of 1575 feet in chalk unless treated with acid However, three fourths of a mile southeast of the discovery well of the field, Gibson-Johnson & Higgins' Frost Lumber Company 1, Section 19-9-13, Head & Lambert's Edwards 1, NW SW NW Section 29-9-13, which logged marl at 1582 feet, and then cored to 1600 feet, lost returns when efforts were made to set a string of eight-inch casing. This is the first time such behavior has occurred in a test at Converse; elevation is 241 feet.

In Bienville Parish, Pat Marr's Caldwell 1, SW NE Section 23-16-5w, is drilling below 3080 feet.

In Bossier Parish, Cryer Oil Company's Cryer 1, Section 25-19-12, was shut down at 1000 feet. H. I. Morgan's Smith 2, Section 22-19-11, on the southwest flank of the shallow Bellevue field, designed for a deep test is fishing drill stem at 3960 feet.

In Caddo Parish, Bolinger and Walker's Thompson 1, SE SW Section 16-22-14, is drilling below 2980 feet. In the same parish Caddo Prairie Development Company's Hawkins 1, SE SW Section 14-22-15, is drilling below 1675 feet.

In Claiborne Parish, United Gas Public Service Company's M. E. Temple 1, SE SE Section 21-23-7w, has spudded for a 4500 foot test.

In DeSoto Parish, Mrs. Aleene Ibach, Trustee, after logging seven feet of sand alternating with streaks of shale showing oil, is shut down at 2890 feet for a string of casing. This is probably Tokio. Another interesting wildcat in the same parish, E. T. Oakes' Johnson 1, Section 30-13-15, missed a core in a soft formation to 4584 feet and then recovered a core to 4592 feet in hard formation. Considerable gas is showing. This is in the lower Cretaceous. Elevation is 288 feet. Jack Whitson's Sanders 1, SW SW Section 19-11-13, which bailed considerable oil at

2765 feet later shut down for fuel at the same depth.

In Jackson Parish A. C. Thomas' J. W. Jones 1, SE NE NE Section 25-15n-3w, is a derrick.

In Natchitoches Parish, Natchitoches Petroleum Company's Edenborn 1, SW NE Section 4-11-6w, is drilling below 2780 feet.

In Rapides Parish Evers and Collingswood's Hixson-Simmons 1, NW NW Section 4-4n-1e, is shut down at 450 feet.

In Sabine Parish in the Converse field, Feazel & Davenport have spudded Aaron & Musser 1, NW NW Section 32-9-13, and are drilling at 500 feet. In the same field R. T. Henderson's Sistrunk 1, SE NW Section 9-9-12, five miles northeast of Converse production is being standardized after being treated with acid and bailing 72 barrels of oil on the fourth day after being opened, at total depth of 2000 feet. H. C. Lessenger has been hampered by bad roads in rigging up for Bowman-Hicks 1, NW SW Section 13-9-13, in the Converse area. In the same area Sandfield Oil Company's Bowman-Hicks 1, NE NE Section 26-9-13, is preparing to core for the Austin chalk after temporary shut down at 3219 feet; elevation is 302 feet. W. M. Ungerman's Cross 1, SW SE Section 25-8-11, is testing an oil show at total depth of 2635 feet.

In Webster Parish, R. E. L. Silvey et al have delayed drilling plug in 6⅝-inch casing cemented at 2817 feet, following logging Blossom sand said to have shown oil from 2829-35 feet, in Drake 1, NE NW Section 14-19-10.

In West Carroll Parish Mrs. Mamie S. McCurry's Donner & Richardson 1, Section 13-19-9e, is drilling below 1550 feet.

Eight Permits to Drill Issued in Louisiana

Shreveport, La. — Permits to drill new wells issued in Louisiana during the week totaled eight, bringing the year's total up to 52. Of these permits, four were for Sabine Parish, two for Terrebonne, and one each for Cameron and Vermilion Parishes.

In Cameron Parish The Texas Company was granted a permit to drill State Calcasieu Lake 8, 14,255 feet west and 3270 feet north of the NEc Section 1-14s-9w.

In Sabine Parish, The Texas Company, Shreveport, was granted a permit to drill Stille 6, 900 feet east and 285 feet south NWc Section 33-8n-11w. Graham Production Company, Shreveport, was granted a permit to drill L. Lites 2, 330 feet south and east NWc SE¼ SW¼ Section 28-8n-11w. Ed Deckard, Many, was granted a permit to drill Webb 2, 150 feet south and 150 feet west of center of Section 31-8n-11w. Pelican Natural Gas Company, Inc., Shreveport, was granted a permit to drill L. L. L. Lbr. Co. 20, 330 feet south and west of NEc SE¼ NE¼ of Section 8-7n-11w.

In Terrebonne Parish, The Texas Company, Shreveport, was granted permits to drill State Dog Lake 8, approximately 1000 feet northwest from T. T. Co. State Dog Lake No. 6 in Section 31-21s-16e; State Caillou Island 8, 1050 feet south and 2770 feet east of northwest corner of Section 20-23s-20e.

In Vermilion Parish, Pure Oil Company, Houston, Texas, was granted a permit to drill Mulvey Irrigation 3, 660 feet south and 2369 feet east from northwest corner of Section 34-11s-1w.

Three Dry Holes Comprise North Louisiana Results

Shreveport, Louisiana. — Two tests were abandoned as dry holes in the Zwolle chalk rock field of Sabine Parish last week and one test over three miles north of the two producers in the new Converse field, also in Sabine Parish, was abandoned as dry, these comprising the last week's completions list in North Louisiana.

Heavy rains, cold weather, and bad roads materially slowed up activity. Only one new location was announced in North Louisiana, this being Ed Deckard's Webb 2, located 150 feet south and west of the center of Section 31-8-11, Sabine Parish, in the northeast edge of the Zwolle field. Webb 1, same section, was drilled by A. D. King, Trustee. Corporation Oil Company has decided not to drill Eberle 2, SE SE Section 36-8-11, at present, as have J. R. Watt et al, on Ponder 1, NW NE Section 15-7-11. These operations were in the Zwolle field.

In Converse, Ben Youngblood et al's A. J. Burkett 1, NE NW Section 10-9-13, will not be drilled. In Grant Parish Robichaux et al will not drill Bradford 1, located 315 feet south, 1870 feet east NWc Section 16-9-1e.

North Louisiana completions last week follow:

Company, Well and Location	Initial Production Bbls.	Depth
Sabine Parish (Converse)—		
Service Drilling & Roy. Corp., Whitney Corp. 1, 32-10-13	*	2209
Sabine Parish (Zwolle)—		
Pelican Nat. Gas Co., Four L 19, 33-8-11	*	2715
Pugh & Hickman Drilling Co., Blackman 1, 36-8-12	*	2575

*Failure. †Junked. ¶Million cu. ft. gas.

Miller County Extension Test Will Drill Deeper

Texarkana, Ark.—Jenkins Brothers' Ben F. Smith 1, SE SE Section 32-15-26, Miller County, half a mile west of production, and which logged red beds without encountering sand at the pay horizon at 2950 feet, will be deepened from present total depth of 3016 feet in red beds.

In Cleburne County, Arkansas, Fred J. Craver's Donithan Lumber Company 1, SW SW Section 34-11-9w, is drilling at 3655 feet. Kendall Oil Company's Fullenwider & Kitchen 1, NE NE Section 13-17-22, Columbia County, is drilling at 2620 feet. In the same county Allen E. Smith, Trustee's J. M. Smith 1, SE NW Section 5-16-18, is rigging up.

In LaFayette County Charles McDonald et al's Allen 1, Section 11-19-26 is waiting for testing tool at 3269 feet after two feet of sand showed much gas. In the same county Sam Wilson, Jr., has abandoned location for Smith 1, NW SE Section 24-19-23, and is moving in rig having already built derrick for Red River Lumber Company 1, SW SW SW Section 19-19s-25w in the same county.

In Little River County, American Portland Cement Company's Fee 1, SW NE Section 21-12s-32w, is drilling below 1675 feet.

The following Miller County tests besides the one mentioned above have changed status during the last week: Duluth-Arkansas Oil Company's H. Z. Price 1, NE NE NE Section 18-16-25, drilling below 90 feet. Magnolia Petroleum Company's E. V. Olivet 1, NW NE Section 4-16-26, shut down at 200 feet for fuel. Stephens and Byers' Jones 1, NE NW Section 14-16-27, is waiting for a new boiler at 3119 feet after the old boiler blew up.

The status of other Arkansas wildcat tests was unchanged from the week before.

Three Miller County Wells Fail to Produce

Texarkana, Ark.—Miller County, Arkansas, accounted for three failures last week, two dry holes and one junked test, with no new locations being made for that county which recently had a consider-

able drilling campaign as the result of three commercial oil wells.

Half a mile north of production in the lenticular field, J. M. Burnham's E. L. Beck 1, located 150 feet north and east, SWc SW NE Section 33-15-26, was abandoned as dry at 3036 feet. West of production Bobby Manziel's B. F. Smith 1, located 150 feet north and west SEc S½ NE SE Section 32-15-26, was junked at 2930 feet. A drill stem hung in the hole caused the abandonment. C. H. Nelson et al's Rose 1, NE SE NW Section 4-16-26, was a dry hole at total depth of 2971 feet.

Some trading in Miller County leases is still under way, however. Sam Riggs, an East Texas operator, has acquired a 500-acre lease centering in Section 12-15-27 at the M. S. Boyce farm. D. L. Irwin of Dallas secured a 740-acre lease centering at the John Ellington farm in Section 14-15-27.

Leases were recorded here last week showing that Lion Oil & Refining Company acquired Miller County leases from Abe Sterling as follows: for $1,000 cash and $1,000 in production; W½ SE NW Section 8-16-26, E½ SW SE Section 23-16-27 and W½ SW SE same section, at the rate of $7.50 per acre.

Root Refining Company for a nominal consideration bought the following leases from T. A. Sims and others: NW SW Section 36-17-26; SW SW Section 23-17-26; SE NE and NE SE Section 30-17-26, and W½ SW Section 32-17-26.

The week's completions follow:

Company, Well and Location	Initial Production Bbls.	Depth
Miller County—		
J. M. Burnham, E. L. Beck 1, Section 33-15-26	*	3036
Robert Manziel, B. F. Smith 1, Section 32-15-26	†	2930
C. H. Nelson et al, Rose 1, Section 4-16-26	*	2971

*Failure. †Junked. ¶Million cu. ft. gas.

South Arkansas Test Must Start Before March 2

El Dorado, Ark.—Another wildcat test for Union County, south Arkansas, is promised in a 3500-acre block assembled by Charles Thornton and Bill Monahan of El Dorado, centering in Section 13-9-13, for a 3500-foot test which must start by March 2, 1933. This block geologically is said to be well located on a sub-surface structure that was mapped on top of the Meekin sand which has a closure of approximately 150 feet. Sand conditions are reported favorable as several edge tests on this "high" have reported shows of oil and gas in the Nacatosh, Meekin, Graves and Ozan sands as well as in the red beds.

Two Important Mississippi Wildcat Tests Abandoned

Jackson, Miss.—Two important Mississippi wildcat tests, one a 5000-foot test just south of the Jackson gas field in Hinds County, and the other the first of a series of five tests to be drilled on as many blocks in the delta section of Mississippi, the first being in Sunflower County, were abandoned last week.

In Hinds County, Cleve Love and W. E. Lancaster abandoned Elton Plantation 1, SE SE Section 17-4n-1e, as a junked hole in the Eutaw at 5050 feet, elevation was 260 feet. Operators were never able to get to bottom after several weeks shut down due to recent high water overflowing from Pearl River. This well logged the Jackson at 255 feet, Wilcox at 2025 feet; topped the Midway black shale at 3940 feet; Midway chalk at 4062 feet and Eutaw at 4550 feet. This was the deepest test ever drilled in either Rankin or Hinds counties.

These same operators announced they would move rig to a new location, Wansley 1, NE NE NW Section 21-4n-1e, which is approximately three-fourths of a mile east and 600 feet south of the abandoned hole, for another test to practically the same depth if no production is found above.

In Sunflower County, Westbrook-Thompson, Stewart & West's School Board 1, SE SE NE Section 16-20n-4w, was junked and abandoned in Midway chalk at 3702 feet. Elevation is 150 feet.

Lionel Petroleum Company's J. L. Gaddis, Jr. 1, Section 7-7n-3w, a wildcat in Hinds County is still a derrick although arrangements are being made to move in rig at once.

In George County, Gulf Refining Company has spudded Pascagoula Hardwood Company 1, Section 12-2s-8w, and cemented 228 feet of 8⅝-inch casing, preparatory to drilling ahead. Pelican Oil & Gasoline, Incorporated, in the same county, is moving in materials for Luce Packing Company 1, SW NW SW Section 19-1s-5w.

In Jasper County, Spraragen & Jones' Bank of Philadelphia 1, SE SE Section 35-3n-12e, is drilling chalk at 4830 feet; elevation is 600 feet. In Newton County Dalton Development Company's Majure 1, SE SE Section 25-6n-11e, is down to 3600 feet, according to some reports. In Wilkinson County, Foster Creek Oil Corporation's Foster Creek Lumber Company 1, Section 14-2n-2w, is drilling below 1700 feet.

In Monroe County, P. J. McAlpine's Charles Rye 1, Section 22-15s-17w, is coring at 2700 feet in hard sandstone containing a little shale but without porosity. This test is 1320 feet from Arkansas Natural Gas Corporation's Rye 1, NW NE NW Section 22-15s-17w, that in 1928 showed 3,186,000 cubic feet of gas at

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2693-2715 feet. The latter well with elevation of 232.4 feet, practically the same as the present test, had dark slate at 2631 feet and at 2693 feet the gas sand was encountered with hard and soft streaks alternating and showing a little water. After a 40-quart shot this old test showed the gas. This interval has not appeared in McAlpine's test.

Jackson Field Producer Yields Mostly Salt Water

Jackson, Mississippi.—The second oil well for the Jackson field completed during the past week, like its predecessor, showed a large volume of salt water along with the heavy oil, which is 13.2 gravity. The new completion, J. A. Matson et al's Warner 1, located 1100 feet south and 200 feet west NEc W½ SE Section 14-5n-1e, Rankin County, is flowing 150 barrels of oil and 1000 barrels of salt water daily from chalk at total depth of 2489 feet. After failing to reach bottom with a string of 6⅝-inch casing by 150 feet, a 260-foot string of 4½-inch casing was set with 40 sacks of cement in the remaining open hole to the top of the chalk, three feet above bottom.

This well is in the same section and an offset to Henselee et al's Warner 1, the other commercial well completed last summer. These wells are in the extreme southeast part of the Rankin County part of the Jackson gas field.

Completions for the last week in Mississippi follow:

Company, Well and Location	Initial Production Bbls.	Depth
Hinds County—		
Cleve Love & W. E. Lancaster, Elton Plant 1, 17-4n-1e	†	5050
Rankin County (Jackson)—		
J. A. Matson et al, Warner 1, 14-5n-1e	100	2489
Sunflower County—		
Westbrook-Thompson, Stewart & West, School Bd. 1, 16-20n-4w	†	3702

*Failure. †Junked. ‡Million cu. ft. gas.

Announce Open Hearing on Jackson Gas Withdrawals

Jackson, Miss.—Greek L. Rice, attorney general of Mississippi and ex-officio member of the Mississippi State Oil and Gas Board, has announced that an open hearing will be held by the board at Jackson on February 25 for the purpose of discussing the proration of "pull" from more than 100 gas producers in the Jackson field.

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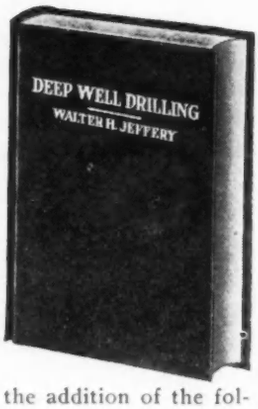

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Two Blocks Assembled for South Mississippi Tests

Jackson, Miss.—Two wildcat blocks both in south Mississippi and probably in the path of the "Conroe trend" have recently been assembled. In Lamar, Pearl River, Stone and Harrison counties, a block of approximately 65,000 acres owned by the Edward Hines Lumber Company Estate has been leased by L. M. Shadbolt and J. R. Smith of Fort Worth, Texas.

W. C. Davis of Bude, Mississippi, who has operated some in Jackson gas field, with some associates, has taken a 23,000-acre block in Franklin County centering around a test drilled 10 years ago by Choctaw Oil & Development Company to a depth of 3260 feet and which gave some valuable geological information as to structural conditions in that area. The log of this well is still used to correlate tests drilled in south Mississippi. The leases in this block are for 10 years and are for 25 cents rental.

Alabama Test Reports Gas Under Shallow Cap Rock

Mobile, Ala.—H. H. Givens' Ashman 1, Section 10-6s-5e, Baldwin County, Alabama, is reported to have encountered a sand at 1393 feet, under several feet of cap rock and it is possible a string of casing may be set. Little has been known of this well which is being drilled with a light rig. Givens also has a test being drilled with a light rig under way in Escambia County, Florida, and is reported to have a 30,000-acre block in Santa Rosa County, Florida, on Santa Rosa Island on which he intends to drill a test with a heavier rig.

So far as is known here other Alabama tests and one in Walton County, Florida, are shut down. In the latter county Oil City Corporation's Walton Land & Timber Company 1, SE NE NW Section 12-1n-19w, is shut down at 5600 feet, waiting orders.

In Lamar County, Alabama, P. J. McAlpine et al's Gardner 1, NW NW Section 22-15s-16w, is shut down at 3350 feet. In Cullman County, Alabama, C. V. Carey et al's King 1, NE NE NW Section 35-8s-4w, is shut down at 710 feet in lime. In Washington County, Alabama, South Alabama Oil & Gas Company's St. Stephens A-1, Section 26-7n-1w, is shut down at 2959 feet.

Bagdad Lumber Company of Bagdad, Florida, which has over 100,000 acres of land in fee in Santa Rosa and Oskaloosa Counties, western Florida, is reported to have recently completed a torsion balance survey of its holdings. J. D. Henderson, president of the company, was connected with the oil business in East Texas.

Baker-Glendive Field Will Be Given Deep Test

Baker, Mont.—A deep test is to be drilled either this fall or early in the spring of 1934 in the Baker-Glendive field in the eastern part of Montana if the plans of Superior Oil & Gas Company mature. C. O. Moore of Kansas City has recently associated himself with the company.

There has been only one deep test ever drilled in this field, and in the light of later geological information it now appears that this was off structure. At present the gas-producing sand is the Judith River, and it is the only one which has been proved. Some nine hundred million cubic feet of gas per day is developed in the field and from this source the supply is taken for towns in eastern Montana and the western Dakotas.

A plan has been considered for several years for the extension of the lines to the Twin Cities, one current report being to the effect that funds of the Reconstruction Finance Corporation may be utilized for this purpose. A bill providing this is at present in the Minnesota legislature.

Good Completion in Jal Field Requires Offset

Hobbs, New Mex.—Assured of three more tests, the Jal field, located in southeastern Lea County, gave encouragement to the operators proposing the forthcoming development work last week by adding one of its largest oil and gas producers. The new completion was made by Continental Oil Company and The California Company's M. F. Sholes 1-B, C SW NW Section 13-25s-36e, from regular lime formation at 3370 feet, flowing 95 barrels oil per hour, and gas production rated at 40,000,000 cubic feet daily. This producer is on a federal permit, and was drilled to take care of previously completed offsets. It will require a south offset by Humble Oil & Refining Company.

Sholes 1-B cased off a flow of dry gas rated at more than 109,000,000 cubic feet daily between 2875 and 3292 feet by cementing a string of seven-inch pipe with 125 sacks of cement at the latter depth. The well was drilled and completed with rotary. The Halliburton sand tester was used to an advantage in determining the base of the prolific dry gas horizon, thus affording accurate data in landing the pipe so as to cut off the heavy gas flow and not include oil saturated lime formation. The well has a surface elevation of 3118 feet.

The rig used in drilling Sholes 1-B will be moved about three-quarters of a mile to the northeast by Continental Oil Company and The California Company to drill S. J. Wells 1-A, located at C SW NE NW Section 12-25s-36e, to comply with a permit obligation. This new test is to be about one-half mile east of the two companies' S. J. Wells 1, which is flowing 45 barrels of oil and 130 barrels of water daily at 3440 feet, having plugged back from 3560 feet. The third test for the Jal area is to result from Pure Oil Company having farmed out its lease on two adjoining 160-acre tracts, comprising SE Section 11 and SW Section 12-25s-36e, to W. F. "Bill" Hanagan et al, who have been operating in East Texas.

Tidal Oil Company's B. Hardin 4, located in north portion of the Hobbs field and near center of NE Section 19-18s-38e, was completed in time to qualify for production during the February 16-28 proration period in earning a potential rating of 12,765 barrels daily at a depth of 4166 feet.

Calgary, Alta.—A test is to be drilled on the Raglin Buttes in the heart of the Kevin-Sunburst field in northern Montana by a group of Canadian operators, it has been announced. Location is on NE NE SE Section 18-34-1w, offsetting the Myers & Johnson test now standing shut down. Work on the new well is to be started when weather conditions permit. No wells are drilling in the field at present.

Five Wells Contracted to Drill in Hidden Dome Field

Worland, Wyo.—A contract to drill five wells on Bales Oil Trust holdings in the Hidden Dome field in Washakie County, Wyoming, has been let to D. L. McDonald of Billings, Montana, and the first test of the program must be spudded in on or before May 1, 1933. Another requirement is that McDonald build a topping plant immediately in Worland; it is to have a capacity of at least 100 barrels, and to be increased as market warrants. The Bales company will own a half interest in the plant and will furnish the crude on which it will operate.

Report from the Bales discovery, in the Hidden dome field, is to the effect that production seems to be increasing steadily, and that the well is now good for about 100 barrels per day. Location for the first of the new wells is on NW Section 31-48n-90w.

Another operator entering the field is J. M. Wheeler who has recently been granted a prospector's permit for a test on SW SE Section 30-48n-90w.

Allen Lake Field Test Gas Stronger With Progress

Laramie, Wyo.—The Ohio Oil Company's Kanawaha No. 1 in the Allen Lake field, near the town of Medicine Bow, is now drilling deeper into the Dakota series. One five-foot sand was tested last week, and is reported to have shown some gas. Location is on SW NW NE Section 34-23n-79w, and last reported total depth was around 1400 feet. If gas in commercial quantities is developed here, the company will lay a line to connect with that which is to be used to furnish natural gas to the City of Laramie from the Dutton Creek field.

New Southern Wyoming Test Attracting Interest

Casper, Wyo.—A new wildcat test in southern Wyoming which has attracted considerable interest since the announcement that it would be drilled is that on the Riverside Ranch structure, SW Section 10-13n-76w, Albany County, which is to be drilled by S. Marvin Jones Company of Denver. This structure was mapped last fall by E. S. Shaw and R. C. Coffin, of the Midwest Refining Company geological staff. It had previously been mapped and favorably reported by Charles T. Lupton of Denver, and Albert B. Bartlett, formerly state geologist for Wyoming. The test is to be of the Casper formation, and according to U. S. Geological Survey bulletins, production should be expected in a 300-foot stratum above 1200 feet.

Test of the Murphy interests on the Platte River dome wildcat structure, eight miles southwest of Casper, is trying for water shutoff in hard shale formation at 826 feet. It is believed to be bottomed near the top of the Lakota. Location is on SE NW Section 29-33-80, Natrona County. The company plans to set 8¼-inch casing on bottom and then underream if necessary to carry it lower. There was a showing of oil in a five-foot sand at 546 feet; the Dakota was topped at 720 feet, the first eight feet of which was dry. A white sand in a break in the formation contained water, and at present the well is flowing good water for domestic use.

In Converse County the test being drilled by Dilger et al on the Poison Lake structure, 18 miles southwest of the town of Douglas, is reported to have successfully shut off the caving formation and to be ready to drill ahead.

Other wildcat operations in the state are temporarily shut down because of bad weather.

Weld County Continues Lead in Colorado Interest

Denver, Colorado.—A completion in the new territory in northeastern Colorado is Ramsey Petroleum Company's well on the Buckingham-New Raymer structure which is good for an initial four million feet of wet gas from the Muddy sand. The company contemplates the erection of an absorption plant at the well to recover drip gasoline. Location is on SW NE SE Section 15-7n-59w, in Weld County. It is understood that the company will drill at least two more wells on the structure, but actual work of moving in will not be started until spring weather permits.

The Manning & Terry well at Greasewood Flats structure, also in Weld County, Niles 1, NE SE Section 13-6n-61w, has been abandoned at 6728 feet. Continental Oil Company and others have resumed drilling in Anthes 1, NE NE Section 24-8n-59w. The 10-inch casing was run and set on bottom at 3318 feet.

In the Fort Lupton area, Retter Oil Company lost the tools at 794 feet in Cronin 1, SW Section 24-1n-66, Weld County, and switched its operations over to Cronin 2 where the lost tools there were recovered at 742 feet and drilling resumed.

Operations in other parts of the state have been considerably slowed up by continued storms and bad weather. In Arapahoe County, McDeb Drilling Company's Fitzsimons 1, NE Section 7-4s-66w, is standing bottomed at 6110 feet.

Although locations have not been announced, there are three new operations starting up in Boulder County. Consolidated Smelting & Metals Company is to drill all of them. One test is to be three miles east of Lyons and has been spudded; the second is a location on the Methodist church property in Lyons, and the third is a rig east of Haystack Mountain near Niwot.

Because of its location on a well-defined magnetometer "high" in eastern Colorado, the J. M. Botts test on the Buick structure, in Elbert County, U. P. Richardson 1, NW SE Section 7-8s-58w, created considerable interest while it was drilling last summer. No reports were given out by the company at that time, and the announcement from a reliable source that the total depth at which the test was shut down was 3150 feet satisfied the curiosity of many operators. Land titles are being cleared up before the test will resume drilling.

In El Paso County, Gulf States Oil Corporation's Carson 2, NE Section 10-16s-66w, is waiting for orders at 2000 feet.

It was reported last week that the test inside the town of Florence, in Fremont County, Mojada 1, NE NW NW Section 22-19-69, would probably be abandoned by the operator, S. W. Pressey. Well is bottomed at 2665 feet.

In LaPlata County, J. W. Irwin's Doescher 1, NW Section 29-33-13, is last reported to be drilling at 3265 feet. Rig is up for McGarr Petroleum Company's Pinon Mesa 1, NE Section 34-33n-12.

On the Gray Creek structure, P. W. Harr et al's Schneider 1, SE SW SE Section 10-33-63, Las Animas County, which has been standing bottomed at 2010 feet, is reported to have let a contract to deepen the test to the Pennsylvanian. It is now in the Carlisle.

Rig was blown down at Eastern Colorado Oil Company's State 1, in the Hugo area, NW Section 36-14s-57, Lincoln County, and it is believed that the operation will be abandoned, although there has been no official announcement to this effect. Total depth is 3465 feet, and there is 2500 feet of water standing in the hole from the Dakota sand.

Mid-Colorado Petroleum Company is still waiting for casing with hole bottomed at 2200 feet in the Omholt, SE Section 29-4n-87, in the Williams Park district in Routt County.

Commercial Gas Well Is Completed in Colorado

Denver, Colo.—A four-million cubic foot gas well was completed in the Buckingham-New Raymer district of Weld County, Colorado, during the week by Ramsey Petroleum Corporation.

The completion follows:

Company, Well and Location	Initial Production Bbls.	Depth
Weld County—		
(Buckingham-New Raymer)		
Ramsey Petroleum Corporation SW NE SE 15-7n-59w	¶4	6791

*Failure. †Junked. ¶Million cu. ft. gas.

Alkali Butte Test Showing More Gas Going Deeper

Riverton, Wyo.—The important deep test of The Texas Company in the Alkali Butte field in Fremont County, Wyoming, is coring around 4700 feet. This well was tested for gas at 4616 feet and showed some six million feet in the Morrison sand. With deeper drilling the showing has been materially increased. Well is the State-Ridgway 1, SW SW Section 36-34n-95w. It has the Sundance sand for its next objective; this is the deepest well ever to be drilled in this field.

Wyoming Cities Permitted Gas Distribution, New Law

Cheyenne, Wyo.—The bill introduced in the Wyoming legislature to permit cities in Wyoming to engage in the sale and distribution of natural gas and to purchase systems necessary therefor, has passed both houses of the legislature and is now ready for the signature of Governor Leslie A. Miller. This bill was presented by the Natrona County delegation and had for its specific purpose the clearing up of litigation now in the courts in which the City of Casper seeks to exercise its right to take over the properties of New York Oil Company inside the corporate limits. According to the franchise granted to the company, the city could take over the system at a value to be appraised by men appointed by the city and the company. Whether or not this franchise was legal has been the bone of contention between Casper and the company which now serves it with natural gas.

Montana Weather Brings All Wildcats to Standstill

Helena, Mont.—Continued severity of the weather has brought almost all activities in Montana to an abrupt shutdown, and last week found no wildcat wells in the state making any progress whatever. It cannot be expected that there will be any developments of particular interest for another week or two and not then unless the weather moderates.

West of the Cut Bank oil field in Glacier County, on the Blackfeet Indian reservation, two rigs are up and ready to spud. Santa Rita Oil & Gas Company's Blackfeet 1, SW NE Section 15-36-6w, and the W. M. Fulton's Haggerty 1, NE Section 16-34n-6w. Both are to be started immediately upon the advent of fair weather.

Rice-Fulton Development Company is held up by storms in the work at its wildcat well on Devil's Hole structure, Section 20-2n-23e, in Yellowstone County. Last reported total depth here was 2450 feet. It is believed that the first Frontier will be found around 2550 feet, the Dakota at 3500 feet, and the Lakota at 3700 feet.

Other wildcats in the state report no

progress. Corbett Royalty Company's test on SW SE Section 1-6s-23e, Carbon County, is standing at 1245 feet, and Jack Creek Oil & Gas Company's No. 2, SE Section 15-7s-23e, is bottomed at 1400 feet.

In Fergus County Melton Corporation's No. 1, SW Section 24-31n-17e, is bottomed at 3305 feet. It will run casing for water shutoff before drilling deeper.

In Gallatin County, on the Three Forks structure, test of Montana Gas & Petroleum Corporation, Adams 1, Section 35-2n-1e, is last reported bottomed at 1730 feet.

Frannie Field Production Extended Half-Mile North

Frannie, Wyo.—A completion which proved a half-mile extension to the north in the Frannie field, and one which is only a half-mile south of the Montana line, is being made by the Continental Oil Company, Northern Pacific 1, Section 23-59-98. The well swabbed 200 barrels in 12 hours from the Tensleep sand, and is now being rigged up to pump. It is higher on structure than other wells in the field, and may eventually prove to be as good or better than the other producers.

Indicated Big Program Ahead for Cut Bank Area

Cut Bank, Mont.—Reports considered reliable here last week were to the effect that work had been completed by Montana Power Company in spotting locations for a program of some 18 wells to be drilled on its holdings in the Cut Bank gas and oil field north of here. Some of these wells will be drilled with rotary rigs—the first real experiment with this method in this field. There was one test started by rotary here last season, but the equipment proved to be too obsolete to be successful, and the well is now drilling with cable tools.

In addition to Montana Power Company's program for the summer, it has previously been announced that the Tarrant interests had spotted locations for 14 wells, and that Irvine E. Stewart, Montana and California geologist, was outlining a program of 14 to 18 wells for Santa Rita Oil & Gas Company. Definite plans of other operators have not been announced, but it is generally belived that some 75 to 100 rigs will be operating in the field before the end of the year.

A particularly good showing is reported from the L. R. Hannah, Agent, Britton 1, NEc NE NE Section 14-34-6w. The well flowed more than 100 barrels in one hour on February 2, according to a reliable report. A new derrick had been built and the crew is now trying to pull the 10-inch casing preparatory to putting the well on production. Total depth is 2897 feet.

The Roy Tarrant interests are swabbing 40 to 50 barrels per day from Britton 1, NE NE SE Section 14-34-6w, which was the first well in the field to be shot. The casing was damaged but once the hole is properly cleaned out it is believed that the well will make a good producer; before the shot it was not believed that it would be commercial. The same company's Haglund, Sr., 1, SW SW NW Section 13-34-6w, is standing uncompleted pending the final outcome of the shot at Britton 1. It is probable that the Haglund well will be shot, then, to increase its production.

A new completion now being made in the field is Dakota-Montana Oil Company's Drumheller 1, on the southwest corner of Lot 2, Section 3-34-6w, which is reported to have some 500 feet of oil standing in the hole bottomed at 2945 feet. There is a good showing of gas along with the oil, and the well will make a fair producer.

Bernalillo County Test Changing Back to Cable

Santa Fe, N. M.—Norrins Realty Company shut down at 3607 feet to rig up rotary to drill deeper in Pajarito Grant 1, NE Section 22-9n-2e, in Bernalillo County. The well only recently changed from rotary to cable, and is now being converted back. The same company has rig up for Galegas Grant 1, NW NW Section 19-11n-4e, but this will not be spudded in for a time.

In Chaves County, Warman Oil Trust has shut down for fuel at Weldon & Hoar 1, SE Section 9-14s-25e. Total depth is 585 feet.

Landowners Oil Company has shut down at 5685 feet for engine repairs at State 1, NE Section 16-1s-27e, in DeBaca County.

The New Mexico Producing & Refining Company is standing ready to resume drilling at 4507 feet in McMullen 1, Section 24-5n-16e, in Guadalupe County. Anton Chico Development Company, SW Section 20-9n-17e, is underreaming to lower 12½-inch to 1260 feet.

In Rio Arriba County the rig is up for Pan-States Oil Company's test to be drilled on Section 26-3s-1e. Operation is to be started when weather improves.

California Corporation has a location for a wildcat test to be drilled on Section 3-29n-11w, in San Juan County.

Kelsey Clients' Crowe Butte 1, 26-10n-10e, in Santa Fe County, is last reported to have reached 1250 feet. It is understood that this operation is held up temporarily by bad weather conditions.

In San Miguel County, Cabra Springs Oil & Gas Company's Thompson 2, NE Section 22-12-22, is standing at 410 feet, waiting for an augmented water supply.

Western Natural Resources Corporation is now drilling below 3916 feet after having changed to cable tools. Location is on NE Section 5-6n-1e, in Valencia County.

Four New Mexico Wells Yield 26,664 Barrels

Hobbs, New Mexico.—Four producers were completed in New Mexico during the past week. The four new wells offered an aggregate of 26,664 barrels of daily production.

Completions for the week follow:

Lea County

Company, Well and Location	Initial Production Bbls.	Depth
Hobbs Field—		
Tide Water Oil Co., Boon Hardin 4	12,500	4166
Jal Field—		
Continental Oil Co.-The California Co., M. F. Sholes 1-B	¶40-2300	3370
Lea-Lynch Field—		
The Texas Co. et al, B. Lynch 2-A	200	3783
Lea County—		
Western Drilling Co., State 1, ne ne se 13-16s-37e	*	5222
Stanolind O.&G. Co., State 29, se -19-38	¶10-11,664	4225

*Failure. †Junked. ¶Million cu. ft. gas.

Two New Locations Are Announced in New Mexico

Hobbs, New Mex.—Two locations in New Mexico, one in Lea County, and one in San Juan County, were announced during the week.

In Lea County, Hobbs High, Amerada Petroleum Corporation will drill Hardin 3 in SW Section 18-18-38.

On Stony Butte, San Juan County, R. R. Burke will drill Government 2 in NW SW Section 18-21-13.

Oil Structure Indicated North of Muskegon Pool

Mt. Pleasant, Mich.—Structure tests drilled in Dalton township, Muskegon County, north bounding township to Muskegon township in which the Muskegon pool is located, indicate a structure with commercial oil possibilities. Five structural tests were drilled, the Muskegon Oil Company and the Reed Oil Company backing the test campaign.

Plans are now under way to drill several wells in that township.

Strange Oil & Gas Company's Littlefield Ranch 1, Clare County, Section 9, Surrey township, this week was drilling 65 feet in the Dundee without production, total depth 4065 feet. In the same county Ira Schefiley's Fur Farm Syndicate 1, Section 21, Summerfield township, was drilling at 1500 feet.

In Midland County the Columbia Oil & Gas Company lost the hole at 450 feet on the Travis 1, Section 32, Greendale township, and is skidding rig to a new location.

Flannigan and Voorhies' Woodruff 1, Oceana County, Section 18, Newfield township, is shut down in the Traverse at 2100 feet without production, pending orders. It may be deepened for a Dundee lime test.

Weather conditions were holding up operations on other Michigan wildcat tests.

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Michigan Wildact Flows 25 Barrels Before Shut In

Mt. Pleasant, Mich.—Michigan Pacific Oil and Gas Company's Otway 1, a semi-wildcat location in Midland County, Porter township, Section 22, SE SE NW, flowed 25 barrels of oil after being drilled 30 feet in the Dundee lime and was shut in until storage tanks could be erected. Importance was attached to the well as being possibly in the same structure as the Pure Oil Company's Yost A 1, six miles northwest.

Producing from a total depth of 3400 feet and higher on the Dundee formation than the Yost A 1 or any of several other tests drilled in that district, the Otway is seen as opening a new area for commercial development. The Dundee lime was topped at 3370 feet and 28 feet in it showed gas and oil. Two feet deeper it made increased production where it was shut in.

A half mile southeast of the Otway 1 the same company drilled a test nearly two years ago to the Dundee which was completed for 45 barrels a day. Recently it was stepped up to 200 barrels with acid treatment. A north offset drilled by Pure Oil Company was dry in the same formation.

Operators now believe that the Otway 1 may have a connection with Pure's Yost A 1, a 1155 barrel initial (completed December, 1932), which, if future tests bear out, would mean a pool some six miles long. The Otway is approximately 10 miles south of the Chippewa-Greendale pool of Central Michigan.

Considerable development is foreseen in the district of the Otway as several different companies hold the offset and nearby acreage. Shell Petroleum Corporation, Stanolind and Sun have offset acreage.

Severe winter weather curtailed drilling throughout the state during the past week with only a few operations active.

Pure Oil Company completed the Yost B-1, direct west offset to the same company's Yost A-1 (a wildcat well completed in December, 1932, with a 1155-barrel a day initial), which made 210 barrels initial from 3455 feet. It was the first completion to follow the discovery strike. Both wells are located in the southern part of Greendale township, Midland County.

The week's completions follow:

Company, Well and Location	Initial Production Bbls.	Depth
Midland County—		
Pure Oil Co., Yost B-1, Greendale Twp., ne ne se Sec. 34	210	3455
Pure Oil Co., Vinton 2, Greendale Twp., ne se sw Sec. 18	60	3582
Talbot Oil Co., State B-4, Greendale Twp., sw se se Sec. 11	40	3555
Jones & Woodruff, Jones-Woodruff 3, Greendale Twp., sw se nw Sec. 13...	10	3570

*Failure. †Junked. ¶Million cu. ft. gas.

Only Two New Locations Announced for Michigan

Mt. Pleasant, Mich.—One of the two new locations made in Michigan this week is for a wildcat test in Mt. Haley township, Midland County, approximately nine miles east and some south of the eastern limits of the Chippewa-Greendale oil pool. The test will be drilled to the Dundee on the William A. Ryal 1, Section 3, SW SW SW, by L. G. Thompson.

The only other new location is for an offset in the proven field: Walter L. McClanahan, Inc.'s Root 3, Midland County, Greendale township, Section 12, SE NE SW.

Offer Is Made to Bring Natural Gas to Detroit

Mt. Pleasant, Mich.—An offer to bring natural gas to Detroit, the supply at least in part to come from the Central Michigan field, and to force a reduction of from 35 to 40 per cent in all classes of gas rates, has been made to the Detroit city council by J. W. Rice of Dayton, Ohio, representing unnamed principals who, he said, "are in a definite position to finance the proposition."

The offer made by Rice is under consideration by the council which for several months has been considering ways and means for bringing about reduced gas rates. At one time a proposition was considered for the city to operate its own gas distribution system and purchase natural gas from a pipe line company that had an application for a permit pending before the state public utilities commission. This plan later was dropped.

43 Wells Completed in Eastern States Fields

Cleveland, Ohio.—Of 43 completions in fields of the Eastern States during the week, 17 were producing wells, 14 were oil wells, and 12 were failures. Pennsylvania ranked first in number of completions, being accredited with 16. Initial production from the 17 producers totaled 124 barrels.

A detailed list of the week's completions follows:

Pennsylvania

Company, Well and Location	Initial Production Bbls.	Depth
Allegheny County—		
E. L. Oles, Coventry 1	¶1	....
Butler County—		
W. I. Gettman & Co., Dombart 3	2	....
Bradford Field—		
South Penn Oil Co., Bingham 405, Tr. 1	pressure	....
Bingham 4220, Tr. 13	20	....
Farm 4192 Tr., (4 wells)	pressure	....
Forest Oil Corp., Fee (3 wells)	pressure	....
Forest Petroleum Corp. Fee (5 wells)	pressure	....
Fee 177	2	....
Quintruple (2 wells)	pressure	....
Forest Oil Developing Corp., Fee 24	2	....
Minard Run Oil Co., Morris 33	2	....
Morris 34	2	....
T. P. Thompson, Jr., Borden 28	3	....
Lawton, Boyle & Co., Bingham 392, Tr. 35	3	....
F. & M. Roat, Fee 10	3	....
Clarion-Venango Counties—		
United Natural Gas Co., Schwab 404	¶1	....
R. D. Shorts & Co., Danforth 2	¶1	....
Clover & Co., Fielder 14	2	....

New York

Allegany County—		
M. J. Crawley & Co., Coast 5	7	....
J. D. McDonald & Co., Warters 6	3	....
Ryder Scott Co., Fee 8	4	....

New York-Penn Gas Field

Penn Natural Gas Co., Cole 3	¶2	....
Geneva Natural Gas Co., O'Conner 2	¶1¼	....
Johnson & Co., Randolph 1	*	....
Belmont Quadrangle Corp., Ballard 1	*	....

West Virginia

Company, Well and Location	Initial Production Bbls.	Depth
Cabell County—		
Guyan Valley Gas Co., Chespeak & Ohio tr. 2	¶¾	2768
Calhoun County—		
Roy Waggoner & Co., Chenowith 2	¶¼	2357
Creed Barker & Co., Keily 1	¶½	2116
F. F. McIntosh, Hays 1	¶½	....
Pleasants County—		
Eureka Oil Co., Hammett 1	1	522
Wetzel County—		
Shimwell Oil & Gas Co., Price 1	10	3083
Wirt County—		
Glen Roberts, Roberts 1	¶2	1727
Wood County—		
Roberts & McPeak, McPeak 1	5	2217

Southeastern Ohio

Noble County—		
Scott & Rohrer, Rohrer 6	¶¼	806
William Patton & Co., Cunningham 11	*	686
Washington County—		
F. H. Knox, Reed 2	*	525

Central Ohio

Meigs County—		
French & Jones, French 3	*	854
Stark County—		
Brendal Producing Co., Givler 1	¶¼	4579
East Ohio Gas Co., Strouble 4	¶2	4477
McClay Bros., Luthi 1	*	4052

Indiana

Henry County—		
Knightstown Natural Gas Co., Reed 4	¶	....
Ohio County—		
Waggoner & Co., Vandiver 1	*	1700
Orange County—		
C. W. Reichards, Cleveland 1	*	1850

Kentucky

Daviess County—		
Three Sands Oil Co., Milton Hrs. 1	*	....
Hancock County—		
Olean Petroleum Co., Crowe 4	20	....
McLean County—		
Whittmer Oil & Gas Co., Stevens 1	*	....
Johnson Oil & Refining Co., Hicks 1	*	1600
Ohio County—		
H. L. Ogle & Co., Miller 2	*	350
Goldberg & Co., Owens 4	35	....

*Failure. †Junked. ¶Million cu. ft. gas.

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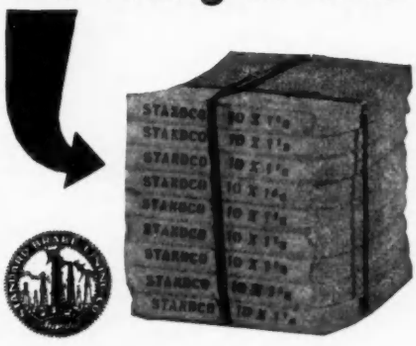

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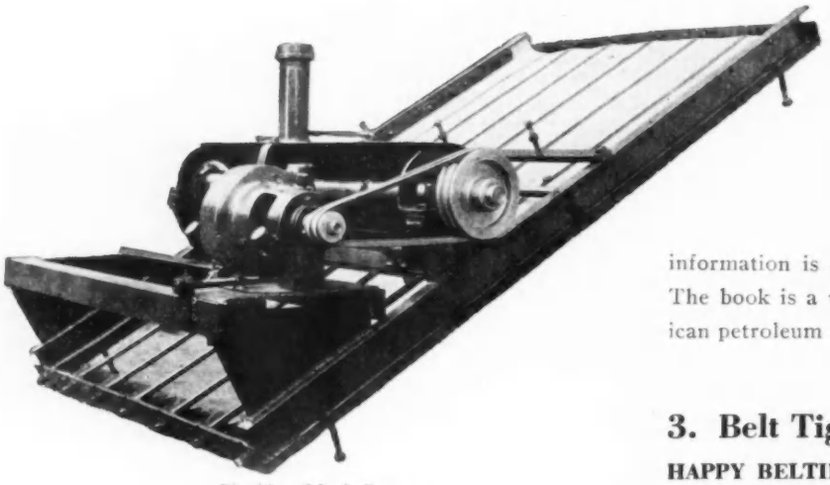


Shaffer Mud Screen

1. Vibrating Mud Screen

SHAFFER TOOL WORKS

Shaffer Tool Works, Brea, California, announces a vibrating mud screen designed to provide an effective and economical method of reclaiming and cleaning rotary mud at the well.

The screen, 48 inches wide by 55 inches long, is set on a 24 degree inclination and is placed in the mud system so that as the mud emerges from under the derrick floor it flows over the screen. The rapidity of vibration causes all the mud to flow through the screen while particles larger than the mesh are retained and fall into the rejection pit.

A two-inch rotating cam shaft, equipped with two ⅛-inch offset eccentric bearings, produces a ¼-inch vibration with each revolution. Two connecting rods run to a cross bar which is attached to the screen assembly. A steam driven turbine equipped with a governor permits regulation of vibrations to the most efficient speed of operation.

2. New Mexico Oil and Gas

A comprehensive bulletin on "The Oil and Gas Resources of New Mexico" has been issued by the New Mexico School of Mines, Socorro, New Mexico. The bulletin was prepared by Dean E. Winchester, under supervision of E. H. Wells, director of the State Bureau of Mines and Mineral Resources and State Geologist. Bound in paper cover, the report consists of 222 pages, is profusely illustrated with photographs, maps, and drawings, and carries a bibliography and index. Detailed information is given on the various oil fields of the state. The book is a valuable contribution to literature on American petroleum resources. It is priced at $1.50 per copy.

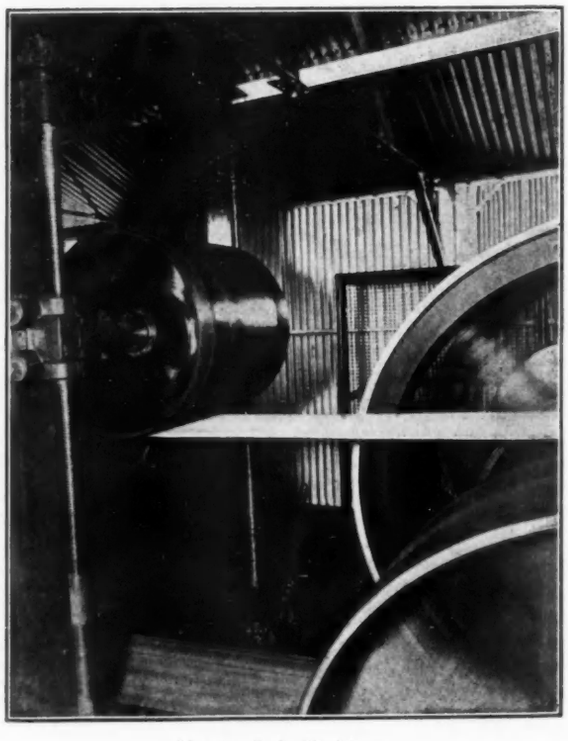
3. Belt Tightener

HAPPY BELTING COMPANY

Happy Belting Company, Tulsa, Oklahoma, announces a new vertical, screw type belt tightener for the engine-to-countershaft drive, adaptable by utilization of longer frame and screws to adjustment of bandwheel belts.

The tightener has a rigid, heavy H-beam frame with adjustable braces for correct alignment of belt. The pulley is mounted on Timken bearings. Large screws with a ratchet wrench arrangement permit tightening or loosening the belt while in operation.

Another feature of the tightener is that it permits quick change over to the spring type flexible tightener.



Happy Belt Tightener

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Please see that I am supplied, without obligation, additional information on New Equipment Items Nos.....
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Company .....

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New Film Depicts History of Petroleum Industry

"The Evolution of the Oil Industry," a new three-reel "silent" educational motion-picture film, prepared under the supervision of the United States Bureau of Mines in cooperation with an oil producing company, is the latest addition to the Bureau's list of films visualizing the mineral and allied industries. The development of the petroleum industry from the earliest times is depicted and the importance of petroleum to modern civilization is emphasized. The cost of making the film was borne by the cooperating company.

The earlier scenes show the building of Noah's Ark; the construction of temples by the disciples of Zoroaster over petroleum seepages where the "sacred" flames were worshipped, and the burning of petroleum in the sacrificial rites of the Central American Aztecs. Other scenes illustrate the use of petroleum pitch and oil by the Babylonians in the defense of their cities and the utilization of petroleum for medicinal purposes by the American Indians.

In the preparation of this picture records and archives were searched so that an authentic replica of the Drake Well, the first producing oil well in America, could be built at the original location near Titusville, Pennsylvania. Details of the drilling operations incidental to the bringing in of this well in 1859 are presented.

Next are given a series of scenes portraying the pioneer days of the American oil industry and showing early production methods and equipment. It is brought out that the first refineries were built to produce kerosene, which was at that time the chief marketable product.

After this, the film takes up the gradual development of the petroleum industry to its present great extent. The drilling and operation of modern oil wells, the construction of pipelines and refineries, and the transportation of petroleum by railway tank car and tank ships are picturized.

Animated photography is used to show the operation of the internal-combustion engine.

The final scenes emphasize the dependence of the present mechanical era upon petroleum and its products. Many scenes were obtained in foreign countries. The commanding leadership of the United States in the production and utilization of petroleum, however, is made clear.

Copies of this film "The Evolution of the Oil Industry," in both the 16-millimeter and 35-millimeter size, may be obtained for exhibition by schools, churches, clubs, civic and business organizations and others, from the Pittsburgh Experiment Station of the United States Bureau of Mines, Pittsburgh, Pa. No charge is made for the use of the film, although the exhibitor is asked to pay transportation charges.

Pumping Jacks

A new sales bulletin No. 15 has recently been issued by Jensen Brothers Manufacturing Company of Coffeyville, Kansas, describing in detail its new type of pumping jacks and equipment.

Brake Lining Data Book

Standard Brake Lining Company, 1137 Venice Boulevard, Los Angeles, California, has recently issued a booklet regarding the application and treatment of brake linings to secure maximum service and satisfactory performance.

Tractor

Cleveland Tractor Company, Cleveland, Ohio, announces availability of an illustrated folder describing the 1933 Cletrac "80" tractor.

Stainless Steel Rule

The Lufkin Rule Company, Saginaw, Michigan, has available on request an illustrated folder describing a new model, stainless steel tape rule, the blade of which is five eighths inches wide and six feet long, marked either in sixteenths of inches or in tenths and hundredths in inches.

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Squeaks *from the* BULL WHEEL

"Does yo' take this woman for thy lawfully wedded wife?" asked the colored parson, glancing at the diminutive, watery-eyed bowlegged groom, who stood beside the 210 pounds of feminine assurance.

"Ah takes nothin'," gloomily responded the bridegroom. "Ah's the one that's bein' tooked."

Stopping to pass the time of day with a Missouri farmer, a tourist learned the farmer's father, who was 90 years old, was still living and working on the farm where he was born.

"Ninety years old, eh?" asked the tourist.

"Yes, father is right close to 90," the farmer replied.

"Is his health good?"

"Tain't much now. He's been complainin' fer a few months back."

"What's the matter with him?"

"I dunno. Sometimes I think farmin' don't agree with him."

Alex—Just coming from the bank? So ye have money to put away?

Donald—I didna put money in the bank.

Alex—Then ye drew some out, or borrowed?

Donald—Nae. Neither.

Alex—Ah, weel, an' what did ye there?

Donald—I fillit my fountain pen.

"Is it true, Miss Elderleigh, that you are going to be married soon?"

"Well, no, it isn't. But I am very grateful for the rumor."—Buen Humor.

Howell—A good deal depends on the formation of early habits.

Powell—I know it; when I was a baby my mother hired a woman to wheel me about, and I have been pushed for money ever since.

A woman driver ran into another vehicle and bent a mudguard. It worried her. So she went to a garage and asked the mechanic: "Can you repair this mudguard so that my husband won't know it has been bent?"

The mechanic looked at the bent mudguard and then at the woman and replied: "No, madam, I can't. But I can fix it up so that in a few days you can ask your husband how he bent it."

An office boy out for a noonday stroll wandered through Trinity churchyard looking at the pigeons and the couples gazing thoughtfully at each other across the ancient graves, and reading the inscriptions on the tombstones.

"Not Dead But Sleeping," read one particularly aged stone.

The office boy scratched his head, meditated a moment and then remarked: "He sure ain't foolin' nobody but himself!"

"Be this the Woman's Exchange?"

"Yes."

"Be ye the woman?"

"Yes."

"Well, then, I think I'll keep Maggie."

Diner: "I see that tips are forbidden here."

Waiter: "Lor' bless yer, mum, so was the apples in the garden of Eden."

Friend: "Don't cry, little boy. You will get your reward in the end."

Tommy: "S'pose so. That's where I allus do get it."

"Mista Ottist, I vant you should make me a doughnut sign."

"Certainly, Mr. Ginsberg, but I thought that you were a butcher, not a baker."

"Sure, I am a butcher; I vant it a sign 'Doughnut Hendel de Feesh.'"

The Scotchman couldn't find his ticket. On the conductor's second round it was still missing.

"What's that in your mouth;" the conductor asked.

Sure enough, there was the missing ticket. The conductor punched it and went his way.

"Aw, weel," said Sandy, when several of the passengers laughed, "I'm nae so absent-minded. It was a very auld ticket and I was just suckin' off the date."

Small Girl (to seven-year-old boy friend): "Oh, I think you're lots better looking than your daddy."

Boy (true child of the motor era): "Well, I oughta be—I'm a later model."

"I painted something for the academy last year."

"Was it hung?"

"Yes, near the entrance, where everybody could see it."

"Congratulations. What was it?"

"A board which said: 'Keep to the left.'"

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